User's Guide
For
Photon

Compulite R&D
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CHAPTER 1
INTRODUCTION

This User's Guide contains 20 chapters and 3 appendices. The User's Guide is divided into 8 parts.

Part 1 - General

- **Chapter 1 Introduction**
- **Chapter 2 General Operation**
  A concise overview of operational features, such as the Editor, Playback Devices, Soft Keys, Display Formats, and On Line Help.
- **Chapter 3 Displays**
  Descriptions of the different displays available in Photon and operating instructions for Display control.
- **Chapter 4 Quick Start**
  This chapter provides operating instructions for the most basic functions on Photon. Its purpose is to provide quick instruction to operators familiar with lighting consoles.

Part 2 – Basic Programming

- **Chapter 5 Selecting and Editing Channels and Scrollers**
  Operating instructions for basic channel and scroller selection, advanced selection sequences, and assigning dimmer and frame values.
- **Chapter 6 Programming Memories**
  Basic programming functions, including using the Call function, how to convert memories to editor groups, assigning Fade Times, programming in Blind mode, and inserting memories.
- **Chapter 7 Loops & Links**
  Programming memories with Loops to run as Chasers on the controllers or on the crossfader. Linking non-sequential memories.
- **Chapter 8 Memory Modification**
  Operating instructions for basic memory modification, quick modification for memories assigned to playback devices using the STORE STORE function, and Delta tracking modification.

Part 3 – File Management and Printing

- **Chapter 9 Data Storage, Retrieval, & Printing**
  How to Record and Load show files, and Printing options.

Part 4 - Playback

- **Chapter 10 The A/B Crossfader**
  Making assignments to the A/B crossfader, playback using automatic Go commands or manual operation, and automatic Rate control.
- **Chapter 11 Controllers**
  Assigning memories, groups, and Chasers to the Controllers. Using the automatic Go and manual playback operations. Rate control for Chasers.

Part 5 – Advanced Topics

- **Channel 12 Event**
  Program events to operate multiple assignment and playback commands. Events can

be operated when assigned to memories sequencing on the A/B crossfader, in the editor, or using SMPTE.

- **Chapter 13 Effect**
  Program Effects in the Effect menu. Steps comprise an Effect. Effects can be assigned various chaser pattrers.
- **Chapter 14 Snap**
  Store 'snapshots' of all playback device assignments and their fade status. Snaps are analogous to preset pages for Controllers. Photon supports 99 Snaps.
- **Chapter 15 Macros**
  Photon supports up to 999 Macros. Operating instructions for programming Macros blind, in the Macro menu, or live using the Teach macro function.

Part 6 – System Configuration and Patching

- **Chapter 16 System Configuration**
  General system Configuration in Service Tools and using operator definable system parameters in the System Parameters menu.
- **Chapter 17 Channel and Scroller Patching**
  The Channel Patch provides functions for soft patching dimmers and channels, assigning dimmer curves, assigning proportional levels to dimmers, examining patch assignments. The Scroller Patch provides easy functions for setting up frames, assigning control channels to scrollers, and copying scroller set ups.

Part 7- Communication Protocols

- **Chapter 18 MIDI**
  Enable MIDI communication and edit MIDI codes in the MIDI menu. The MIDI synch option allows a second lighting console to synchronize crossfade operations with the main console.
- **Chapter 19 SMPTE**
  Assign SMPTE time codes to Events using the live Teach function and enable Photon for automatic operation using SMPTE transmission.
- **Chapter 20 DMX Input**
  Patch DMX Input channels to operate local console channels or macros.

Appendices

- **Appendix A Service Tools**
  Operating instructions for disk formatting, the Hardware diagnostics tool, and software upgrade functions in Service Tools.
- **Appendix B Patch 999**
  Instructions for editing Patch 999, which allows logical channel patching.
- **Appendix C Panel Layout**
  Short descriptions of all panel keys. The keys are arranged alphabetically.

Using this User's Guide

Setting up Photon

If you are setting up the system for the first time, you may want to consult Chapter 16 System Configuration and Chapter 17 Channel Patching

New users

If you are new to lighting consoles or are unfamiliar with Compulite consoles, familiarize yourself with the information in chapters 2 – 11. These chapters provide you with general information and give you the building blocks to create and modify memories (cues), and play them back. Chapters 12 – 20 deal with more advanced functions.

Common Terms

Three major capabilities are basic to lighting consoles: editing, playback, and patching.

Editing is the ability to select channel and scrollers, assign intensity and parameter values, and record the resulting stage picture as a memory or cue. All functions related to the playback structure of the show, such as event assignments, snaps, loops, and links are part of the editing functions.

Playback is the ability to replay all the show data that you have created while editing. Playback can be manual and automatic.

Patching includes all of the patching functions, which instruct the system how to communicate with conventional projectors, color scrollers, other DMX512 protocol elements, and moving lights that are controlled by the lighting console.

Editing terms

- Channel - The control channel for DMX512 devices, which are not moving devices. These include conventional projectors, color scrollers, smoke machines, etc.
- Intensity - Dimmer intensity of channels.
- Present or active (in the editor) - Channels that are displayed in white. Everything present/active in the editor is included when recording a memory.
- Selected (in the editor) - Channels that are displayed in red and therefore can be assigned intensity or scroller values.
- Memory - is analogous to cue. The group in the editor, comprising the lighting state on-stage, is stored as a memory. Memories are then played back.
- Value - The numerical value assigned to a parameter or a dimmer.
- Store - Save the information in the editor.
- Erase - Delete selected data.
- Modify - Change stored information and fade rates.
- Frame - Scroller frame.

Playback terms

- Go - Initiate an automatic crossfade, controller fade, or chaser run.
- Hold - Stop any fade or chaser in progress.
- Multifade - Initiate a fade to the next memory in sequence before the fade in progress is complete.
- End Stop - When crossfaders or the controllers are at either 0% or 100%.
- Off the End Stop- When the crossfaders or the controllers are at more than 0% or less than 100%.
- Rate - The rate at which channels fade in or out during a crossfade. The rate at which a chaser runs.
- Step - Manually moving from the current memory to the next memory of a chaser.
- Sequence - The numerical sequencing of the memories on the A/B or C/D crossfaders.

Text conventions

- Panel **[KEYS]** are in square brackets, all caps, and bold.
- *Messages* are in *italics*.
- # refers to a number entered on the numeric keypad.
- Command line refers to the sequence of keystrokes executed and displayed in the gray line at the bottom of the display monitor. The keystrokes in the command line are represented in *italics*.
- Prompt line refers to *prompts* occurring in menus; these are *italicized*.
- Desk, console, and system are used interchangeably.

Output Level Conventions

Photon uses the HTP (Highest Takes Precedence) convention for dimmer channels. Scroller frames are subject to a rigid control hierarchy.

The Editor always overrides any other control devices.

CHAPTER 2
GENERAL OPERATION

This chapter includes:

The Editor Section

- F keys
- Programming memories
- Editor color key
- Editor error trapping
- Clearing the editor

Parameter Control

- The wheels

A/B Crossfader

Controllers

Soft Keys

- Assigning the default mode
- Assigning a temporary mode
- Using the Soft Keys for playback control
- Color code for Soft Key LEDs

General Master

Menus

- Accessing menus
- Exiting the menu mode

Text & the Alphanumeric Keyboard

- A page of text
- Erasing text
- Using the text keyboard for programming
- Locking/unlocking the keyboard

On-line Help

System Status

The Editor Section

Editing keys are used to:

- Select channels
- Assign intensity
- Program memories
- Manipulate the display.
- Assign memory attributes such as Loops and Links.

Most keys are single purpose keys. Some keys however access two different functions. The function in the lower half of the key is accessed using the **[SHIFT]** key.

The numeric keypad is used for number selections. Some selections may be done on the Soft Keys.

Keystrokes appear in the yellow command line at the bottom of the display.

Selected channels appear in red. Channels displayed in red are may be assigned values.

Channels displayed in white are present in the editor, but not currently selected. They are included in any memory that is recorded.

The Editor operates in Live and the Blind modes. In Live mode any alterations made to the stage picture are visible on stage. In Blind mode, memories are programmed or modified without any interruption of the active stage picture.

F keys

The Function (F) keys are multi-purpose soft keys, generally used while working in menus. When the system is not in menu mode, **F1-F5** offer immediate access to Macros 1-5. **F6** accesses the rest of the macros. In menu mode these keys access the convenient menu functions and options. These keys are also used for Delta application and editing SMPTE time codes.

Programming memories

Memories are programmed by selecting channels and assigning intensity or scrollers frame values and then storing the resulting stage picture as a memory.

Each memory may be programmed for the following information:

- Fade in and out time, from 'cut' to 999.9 seconds.
- Delay, wait -in, and wait out time, from 'cut' to 999.9 seconds.
- An automatic follow-on memory created by using the loop function.
- Loops containing any number of memories.
- Links between non-sequential memories.
- Event assignments that automatically operate multiple functions
- Text

Editor color key

Color	Status
Red field	Channels selected in the editor. Channels displayed in red can be assigned intensity levels and, if controlling scrollers, frame values.
White field	Channels that are present in the editor. When storing an editor group as a memory the channels displayed in white and red are included in the memory.
Dark blue	Channels selected under memory modification (see Chapter 8 Modifying Memories).

Editor error trapping

Photon has efficient error trapping, meaning that you cannot go too far wrong. An illegal key press is immediately recognized. If you make a mistake the system displays messages such as *Illegal Number* or *Invalid Sequence.*

To get rid of this message and continue working, press the correct key. The correct keystroke clears the error and allows the operation to continue.

Clearing the editor

You can clear the editor by pressing either **[RESET]** or **[CLEAR]**.

Using RESET

Press **[RESET]** once to fade out the channels in the editor in Default Fade Time. The Default Fade Time can be modified in the System Parameters menu. (See Chapter 16 - System Configuration).

Press **[RESET]** twice to bump out the channels in the editor.

Using CLEAR

[CLEAR] works as a regressive clear function.

Press **[CLEAR]** once- the command line clears, leaving only the selection mode (channel or memory).

Press **[CLEAR] [CLEAR]** - the output of selected channels (displayed in red) are cleared.

Press **[CLEAR] [CLEAR] [CLEAR]** - the selection mode is cleared from the command line. The editor is now idle.

A/B Crossfader

The A/B crossfader is the playback crossfader of the system.

Memories assigned to A/B crossfade, sequencing in numerical order, when either an automatic Go command is received or the crossfade is performed manually.

Fades are executed automatically by pressing **[GO]** , fading according to prerecorded fade rates, or by manual movement of the crossfader. The crossfade rate can be overridden at any point in the fade progression by using the rate wheel.

The A/B crossfader area of the console consists of: the A fader and the B fader, an LED display for each fader that shows their current assignments, assignment keys and control keys.

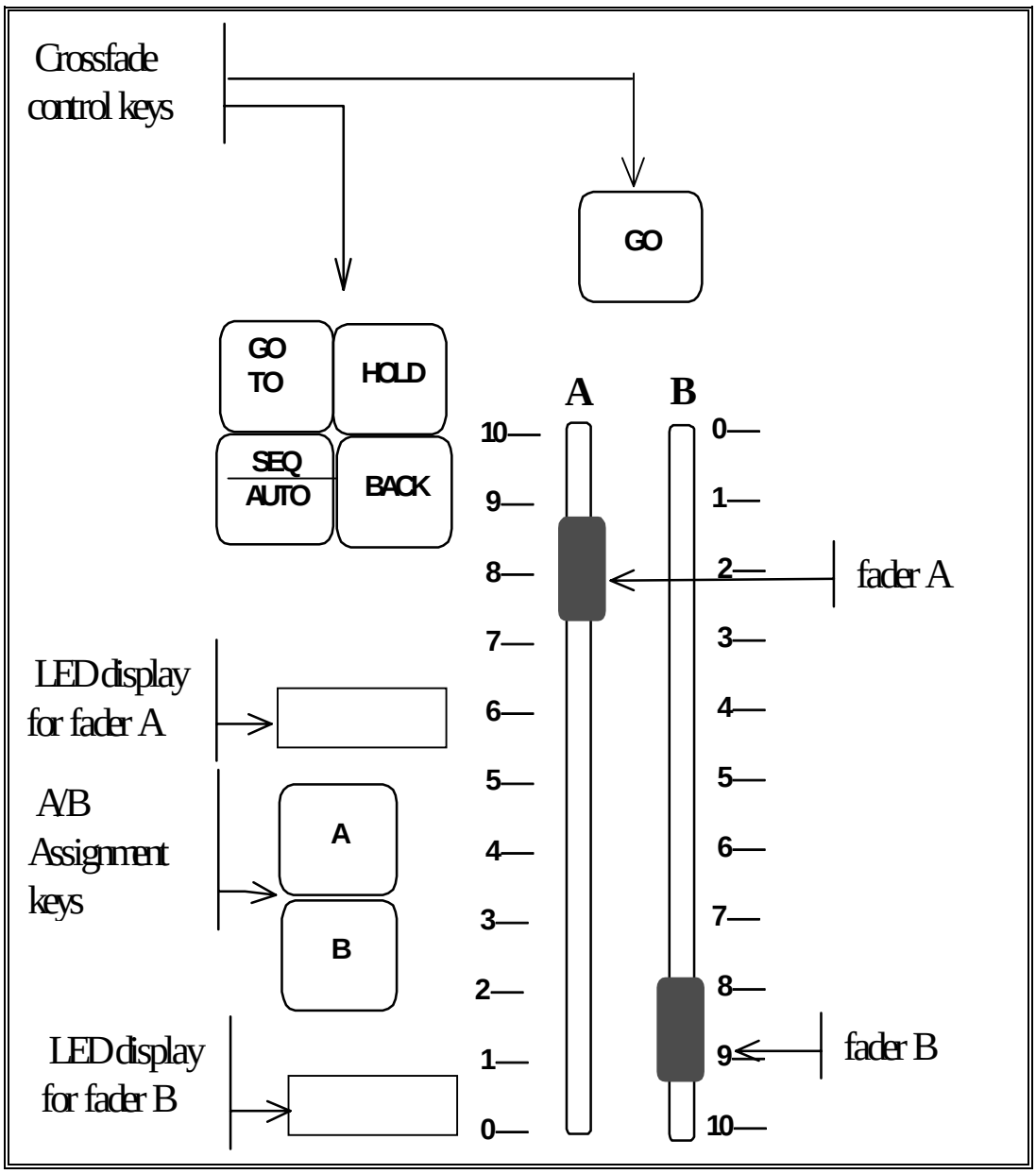


Figure 1 The A/B crossfader area

The Playback area of the Stage display (display formats 1 and 3) shows the current status of the A/B crossfader.

The X-Fade Exam is a display dedicated to the A/B crossfader and is generally used during playback. (see Chapter 3 – Displays)

The A/B crossfader supports memory Loops, Links, and Event assignments.

Controllers

Photon has 20 controllers. Each controller has an associated Soft Key and colored LED.

The controllers accept groups of channels, memories, Chaser, and Effect assignments. The controller position determines the output level of the controller assignments.

Controllers can also be assigned to submaster the controller banks, the A/B crossfader, and DMX Input or as inhibit submasters for channels and memories.

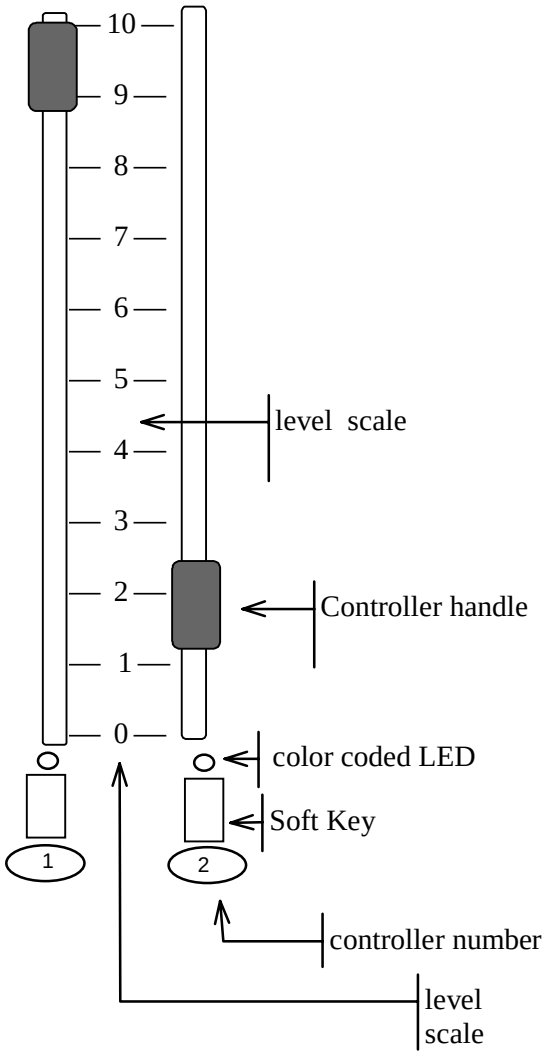


Figure 2 Controllers

Colored LEDs provide information about the type of assignment and the fade status of the Controllers/Soft Keys. Example: Controller 1 is assigned a chaser. The chaser is on hold (not running). The LED under the controller blinks red. When the chaser is running the LED is red and does not blink. If you are stepping through the chaser, the LED is orange.

Soft Keys

The Soft Keys have 3 modes.

Mode	What the Mode does
Assign mode	Allows the assignment of groups of channels, memories, or chasers to controllers. A fade function fades the controller assignment up and down. The Soft Keys are also used for Go commands and to flash the assignment. 10 simultaneous chaser assignments can be made. Chasers are assigned in hard run mode or soft run mode and are easily switched from one mode to the other. There is a special dedicated chaser display. Controllers can be assigned as inhibitive submasters or can submaster the upper bank of controllers, lower bank of controllers, A/B, and DMX Input channels.
Macro mode	Direct access to 40 Macros.
Snap mode	Direct access to 20 Snaps with 2 snap functions modes - non-forcing (additive) and forcing (override)

Assigning the default mode

The Soft Key default mode is assigned by a double hit on **[ASSIGN]**, **[SNAP],** or **[MACRO]**.

Assigning a temporary mode

You can temporarily change the Soft Key mode with a single hit on any of the mode keys. The temporary mode is valid until the one of the Soft Keys is pressed; then the Soft Keys return to the default mode. Temporary modes are preceded by an asterisk (*) the LED display.

Example: The default mode is Assign. You want to go, temporarily, to Macro mode in order to operate Macro 11. Press **[MACRO]** then **SK11**. The Soft Key mode returns to Assign mode.

Each mode has a secondary function that is accessed by pressing **[SHIFT]**.

Mode	SHIFT function
Assign	Fade memory or group assignment from the controller level to FL or to 0. Manual stepping for chaser assignment.
Macro	Accesses macros 21 - 40.
Snap	Operates Snap in forcing (override) mode.

Using the Soft Keys for playback control

In Assign mode the Soft Keys have 4 operational modes:

1. Flash mode is the default function for group and memory assignments. Pressing the Soft Key bumps the controller assignment from its current level to full.

   Chaser Go/Hold is the default for chaser assignments. Pressing the Soft Key starts the chaser. Pressing it while a chaser is running stops and blacks out the chaser.
   The **[SHIFT]** accesses the Go Controller operation, an automatic fade of the controller assignment.

2. **LATCH** When active (LED on) the Soft Keys are on/off keys for memory and grp assignments. Latch may be used in conjunction with either of the **SOLO** keys.

3. **SOLO** When this is active, pressing a SK blacks out the output from all of the controllers except the selected one. May be used in conjunction with the latch function.

4. **– SOLO** When this is active, pressing a SK blacks out the output of the selected controller only. May be used in conjunction with the latch function.

Color code for Soft Key LEDs

Mode/Assignment	Color	Explanation
Macro mode	Orange	There is a recorded macro corresponding to the Soft Key.
Snap mode	Orange	There is a recorded snap corresponding to the Soft Key.
Assign mode	Green	When there is a group, memory, or submaster assignment present.
Chaser assignment	Red blink Red solid Orange	Chaser on Hold Chaser running Step

Examining controller assignments

It is possible to examine all controller assignments in the Assign, Macro, and Snap modes: Press **[EXAM]** and the **Soft Key**.

➢**Note**
In order to use the exam function the mode must be the default mode and not a temporary mode.

General Master

The General Master controls the overall dimmer output of the console.

The General Master fader has a blackout key, which turns off all dimmer outputs in the system. The GM blackout key can be disabled in the System Parameters menu.

The level of the General Master is displayed in the upper right corner of the display. The maximum level of the GM can be set to 100 or 200, in Service Tools/Config sys/F3.

Channels can be removed from General Master control. This is useful when using scrollers and DMX devices such as smoke machines. (See Chapter 17 Channel and Scroller Management)

Menus

Menus provide tools for Patching, defining System Parameters, Memory Management, Macros, and other special functions. The F (Function) keys are used to access the options and functions in each menu. Easy to follow prompts guide you through all menu functions. Once you have opened the selected menu, you will notice that the functions of the F keys change according to the type of task currently being addressed.

Accessing menus

Keypresses	Results/Comments
1. Press **[MENU]** to view the menu list.	
2. Enter a menu by either pressing the appropriate F key, displayed at the bottom of the screen. Or Select the number of the menu, as it appears in the numbered list and press **[ENTER]**	Once in the selected menu, you will notice that the functions of the soft (F) keys change according to the type of task currently addressed.

The prompt line asks all the relevant questions to guide you through the different tasks and functions. .

If you make an error entering information while in a menu **F6 Restart** usually returns to the beginning of the command chain. If you have made an error entering a number selection, pressing **[CE]** usually clears the error.

Number selections in the menu mode are entered on the numeric keypad of the console or, in some cases, the alphanumeric keyboard. Text is typed on an alphanumeric keyboard.

Many menus have more than 5 functions available. It is generally assumed that if you do not see the function under discussion, you will page until you see the option. To view the next page of functions press: **F6 More Function**

Photon contains the following menus:

Menu	**Purpose**
1. Channel Patch	Dimmer management includes soft patch, assigning dimmer curves, defining proportional patch per dimmer, exchanging dimmers, enabling or disabling General Master control. and testing channels or dimmers. Patching for DMX input. Examining patching for dimmers, channels, and scrollers.
2. Load	Load show files from a floppy disk. All the data contained in a show file can be loaded or selected parts, such as Libraries only and Macros only.
3. Memory Operations	Rename, copy, delete memories, and clear the console's memory.
5. Record	Recording Photon's memory contents to a floppy disk or to the hard disk. File management.
7. Printer	Generate hard copy of show data.
8. System Parameters	General system information is displayed. There are options that you can redefine to customize the system.
9. Macro	Create, modify, and delete Macros. Assign Macros to DMX input channels.
10. Effect	Program Effects. Effects are a group of chaser steps with selectable chase patterns.
11. Test	Test channels. Test dimmers regardless of their channel soft patch.
14. Delete Play/Act	Delete shows files from a floppy disk.
20. Scroller	Assign control channels to scrollers, fine tune frame set ups, enable the dark gel option. This menu does not appear if the system is not configured for scrollers.
21. Event	Program Events that trigger multiple playback events in the system.
23. MIDI In/Out	Enable keys and controllers for MIDI communication. Edit default MIDI codes. Program macros of MIDI command strings. Enable or disable the MIDI Synch function.

Some of the F key functions may be carried out on the keypad as in editing:

F Key in menu	**KEYPAD**
Thru	**[→]**
Channel	**[CHANNEL]**
Store	**[STORE]**
Memory	**[MEMORY]**
Next	**[+]**
Previous	**[-]**

Exiting the menu mode

Pressing **[RESET]** exits the menu mode and resets the menu you have just exited. Press once to return to menu list. The second press returns you to stage display.

[MENU] also exits the menu mode. Pressing this key exits the menu you are working on without, in most cases, resetting the menu editor.

If for example, you are busy in the Macro menu and you must temporarily exit the menu, exit by pressing **[MENU]** returning to stage display. When you want to return to the Macro menu, press [**MENU]** to return to the point from which you exited the Macro menu and continue working.

You can exit the following menus without resetting the menu editor:

- Channel Patch
- Macro
- Scroller Patch

Text & the Alphanumeric Keyboard

Text is typed on the alphanumeric keyboard.

You can add text to Macros, memories, to show files when recording to the diskette, to Snaps, Events, controller group assignments, and even leave a note for the second shift crew.

Operating instructions for adding text to the above mentioned items are included in the sections dealing with those subjects.

A page of text

One page is available for text typed on the alphanumeric keyboard. This is useful for recording any notes about special rigging, color changes during interval, cue synopsis, any special comments pertaining to the show, etc.

If the blue text page contains text it is the first display to come up when the system is turned on. This makes a convenient place to leave notes and messages for the next shift crew.

To create a page of text:

Keypresses	Results/Comments
1. Press **[TEXT] [TEXT]**	A blank blue screen is displayed. This is the text page.
2. Type the text on the alphanumeric keyboard	
3. Press [**STORE]**	

➢Note

If there is text on the Text p age, you can access the page by pressing Insert on the alphanumeric keyboard.

Erasing text

The **[ERASE]** key is used to erase text.

Example: Delete the text from the Text page.

Keypresses	**Results/Comments**
1. Press **[TEXT]**	
2. Press **[TEXT]**	The blue Text page is displayed/
3. Press **[ERASE]**	

Using the text keyboard for programming

The text keyboard can be used to program memories. .

The keyboard equivalents are:

a – Text	o – On*	S – Status*
b – block*	p – Part*	T – SMPTE
c – Channel	q – Memory	@ - intensity
d - Page Down	r - Rem Dim*	^ - Except*
e – Effect	s – Store	[- +@*
f – Full	t – Time	] - — @*
g – Mask	u - page up 2	Bs – CE
h – Help	v - (not used)	spacebar – clear
i - Teach Macro	w – Wait	% - flash
j - Move Fade*	x – Exam	& - +1 store
k – Link	y - (not used)	> - →
l - Loop	z – Zero	Tab – Stage
m – Menu	E – Event	Del – Erase
n – Snap	F – Frame	Esc - reset during editing, after inserting text to memories, etc. use ESC to exit text mode.

* These keys are not used with Photon.

Locking and unlocking the keyboard

The alphanumeric keyboard has a lock to prevent unintentional editing. Activate the lock by pressing **Alt A**. Unlock the keyboard for editing functions by pressing **Alt A** again. This lock does not affect the functioning of the alphanumeric keyboard when **[TEXT]** is selected on the console.

➢Note

To use the Print Screen function on the text keyboard, you must first "unlock" the keyboard.

Getting Help

On-line help contains a short description of each of the keys and the important key sequences. When the help window is open, pressing a key on the console only displays its help and does not execute its function.

Keypresses	Results/Comments
1. Press **[HELP]**	A window opens in the middle of the display screen.
2. Press any key you would like to know more about.	A short explanation and any relevant keystroke sequences are displayed.
3. You can continue in Help by pressing another key.	
4. To exit help, press **[HELP]** again.	

➢**Note**
When the Help window is open the console keys are disabled!

System Status

You can check the status of connected peripherals from panel. The peripherals include the Submaster Wing, the Macro Extension Keyboard, the Remote Control, the Wire/less Remote Control, and the alphanumeric keyboard. You are notified if the battery is getting low.

Color key for System Status

Color	What it means
Blue	Device installed and functioning correctly.
Red	Fault
White	Not installed

What to do in case of disconnection

If a peripheral is physically disconnected or there is a communication problem a red blinking S, appearing in the command line, notifies you that there is a problem. You can turn off the blinking S by going to the System Status window and selecting **F2 Ignore**.

Keypresses	Results/Comments
1. Press **[•]**	The System Status window opens. The peripheral devices status is displayed.
2. Press F1 and select the device	

3. Press **F2 Ignore**
4. Press **[STAGE]** or **[CLEAR]** to return to the editor.

Disabling a device

You can also disable any device connected to the console.

Keypresses	**Results/Comments**
1. Press **[•]**	The System Status window opens. The peripheral devices status is displayed.
2. Press F1 and select the device	
3. Press **F3 Disable**	*Disabled* appear in red next to the device.
4. Press **[STAGE]** or **[CLEAR]** to return to the editor.	

➢Note

When the alphanumeric keyboard is locked it is designated as Disabled in the System Status window.

If the Submaster Wing is disconnected from the console, the output from the Wing is moved to the editor and the Status error message blinks in the command line. The assignments to the Submaster Wing are retained. If you reconnect the Submaster Wing, the situation is the same as prior to the disconnect. However, if you go to the System Status window and tell the console to ignore or disable the Submaster Wing, all of the assignments on the Wing are released.

CHAPTER 3
DISPLAYS

This chapter includes:

Overview

Display Control

Display Formats

- Selecting display options
- Customizing the display format

The Stage Display

The Playback Display

Messages and Commands

Output Color Key

The X-Fade Exam Display

Exam Displays

Overview

All the parameters of the system are displayed on a video display monitor. There are 9 display formats to chose from.

The area at the top of the screen is reserved for messages, Blind mode flag, MIDI status, and the General Master level. The area at the bottom of the screen houses the command line, a clock, and the last stored memory or the last memory entered into the editor. The command and message areas are common to all of the display formats.

When viewing the Stage display, which shows the active output, a color code helps you differentiate between the different output sources.

Display Control

The following keys are used for display control:

Key	What it does
[STAGE]	Access the Display Format options. Return to the Stage Display from most Exam displays.
[PAGE UP]	Go to the next page.
[PAGE DN]	Go to the previous page. Access this key using **[SHIFT]**.
[MENU]	Toggle the display between the Menu list and Stage mode.
[+]	Go to the next item. Example: Go from memory 2 exam to memory 3 exam.
[-]	Go to the previous item. Example: Go from memory 3 exam to memory 2 exam.

Display Formats

0. Channel display only. The display includes scroller frames. The color of the channel or scroller number displayed depends on the origin of the data, whether it derives from the A/B crossfaders, a controller, the editor, or tracking.
1. Channel and playback. The playback display includes controller status and A/B status.
2. X-fade Exam shows the incoming and outgoing memories, a list of the next memories in sequence, controller/chaser status, chaser assignments, A/B fade rate, and previous memory on A/B.
3. X-fade and playback.

In addition to the 4 main display options, the `Status Window' section of display formats offers further display configurations.

Selecting display formats

The display option framed in red is the current display.

Keypresses	Results/Comments
1. Press **[STAGE]**	The display format options are shown on the CRT.
2. Enter the number of the display you want on the numeric keypad.	The display jumps to the selected format.

or

Keypresses	Results/Comments
1. Press **[STAGE]**	The display format options are shown on the monitor.
2. Press **F1** until the display format that you want is framed in red.	
3. Press **[STAGE]**	The display jumps to the selected format.

The Stage Display

The Stage display formats for channels are formats 0 and 1.

The channel number, intensity, and frame number (if the channel number also serves a scroller) are shown. Channel displays are display formats 0 and 3.

Customizing the display format

There are 4 additional options for customizing the display formats. The options appear in the Status Window to the right of the display options.

Display	What it shows
Stage Scrlr	A special display area for scroller information. The basic channel display will no longer show frame information, but scroller channels will still be marked with an 's'. Under the channel display, the special scroller display shows the scroller channel number, the dimmer intensity (if any), and the frame status.
Assign channels	Channels that have assignments (are used in memories) are displayed in sequential order. This option also influences the display when selecting channels. Example: Assume that you have not programmed any memories yet. Select channels 1, 5, 10, 15. If you have chosen the assign channels option, that is how they will appear on the screen. In the default format the display would look like this: 1 5 10 15.
Jump display	The display automatically jumps to the page where the selected channel appears.
SQZ (squeeze) display	This option is available only if the Stage Scrlr option is active and the scrollers are displayed separately. This provides more lines for displaying channels.

Keypresses	Results/Comments
1. Press **[STAGE]**	
2. Press **F2** to move the cursor to your selection.	The cursor points to the options.
3. Press **F3**	The option is selected, highlighted in the Status Window. The display format options are updated with the selected status.

The Playback Display

The Playback Display is available on display formats 1 and 3.

The playback display shows the A/B crossfader status. The information on the crossfader includes the current and incoming assignments, the fade rate, loop information, and the Auto status for Event operation. There is a dynamic display of a running crossfade.

When the 20 controllers are in Assign mode the level of the controllers in percentage and the type of assignment are displayed.

Assignment	Display
Memory	Memory number
Grp	grp
Chaser	First and last memories of the chaser assignment Soft chaser is marked with an 's'
Submaster	sub

When the Soft Key mode is Macro or Snap the controller display area is labeled according to the mode. The first 5 characters of the text for the Macros and Snaps are displayed.

Messages and Commands

Messages appear at the top of the screen on the Stage display:

- Messages
- The Blind mode flag
- MIDI status
- MIDI synch status
- Grand Master level
- SMPTE time code
- The Teach Macro flag

The yellow line at the bottom of the screen houses:

- The command line - The command line echoes the keypresses and contains up to 40 characters.
- The clock
- Delta flag
- The last memory recorded (L) or entered (E) into the editor.

Output Color Key

The color key for channels is:

Color	Output source and status
Red	Selected channels, active in the editor, addressable by the wheel or keypad.
White	Channels that are present in the editor, but not selected. Channels appearing in white are included when storing a memory.
Green	Scroller frame values appear in green when the scroller is selected or active in the editor.
Dark blue	A memory entered to the editor for memory modification..
Light brown	Output deriving from a controller.
Light blue	Output deriving from the A/B playback.
Gray	Tracking scrollers. DMX Input channels.
Yellow	Match. This only appears in special circumstances. When the editor level of a channel that has been stored using STORE STORE is different than the level of the output source. Example: Channel 1 is output from controller 1. The controller level is 25%. Channel 1 was selected in the editor at Full intensity then stored. The editor does not release channel 1. So as not to cause a jump in the light on stage. the editor retains channel 1 at Full intensity displayed in yellow. Moving the controller 1 to match the editor level releases the channel from editor control.

To view the color key press **[HELP]**.

Press **[HELP]** a second time to exit.

The X-Fade Exam Display

The X-Fade Exam appears in display formats 2 and 3. This display shows a short memory list of the next few memories sequencing on the A/B crossfader.

Bar graph representations of the A/B crossfader dynamically display the progress of a crossfade. In display format 6 there is an expanded chaser display.

Exam Displays

There are 2 types of Exam displays: strong displays and weak displays.

Weak displays are cleared by any subsequent keypress.

Strong displays remain on the screen and you can continue to work keeping the display on view. An example of a strong display is the selected channel exam. Example: you can exam channel 1 and then perform a memory range modification while viewing channel 1 exam.

Press **[STAGE]** to exit strong exam displays.

Exam displays include:

Exam	What is displayed
Free channels exam	A list of the channels not used in any memory.
Selected channel exam	The memories in which the selected channel appears, intensity and frame assignments.
Track sheet	Tracks channels through memories...
Memory list	A sequential list of all recorded memories, including loop, link, fade time information, text, and assigned Events. You view the memory list from the first page or start from a selected memory.
Selected memory	Channels with intensity/frame values, time assignments, parts (if used) and text for the selected memory.
Snap list	A list of the Snaps and text.
Selected Snap	The playback device assignments recorded in the selected Snap.
Events	The Event list, including assigned SMPTE time codes.
Effect list	A List of all Effects.
Selected Effect	The steps and time information for the selected Effect.
Controller assignments	Information pertaining to the assignment on the selected controller.

Sequences for accessing the exam displays may be found in the discussion of the different functions.

CHAPTER 4
QUICK START

This chapter includes:

Setting Up Photon

Configuring Photon

Patching

- Patching dimmers to channels
- Patching scrollers to channels

Selecting Channels

- Selecting channels & assigning intensity
- Selecting scrollers & assigning frames

Programming Memories

Playback Memories on A/B

Playback Chasers

Recording a Show File

Setting Up Photon

1. Connect the alphanumeric keyboard and the monitor to the appropriate ports on the back panel.
2. Connect the DMX lead to the output port.
3. Plug the power cable into a power source.
4. Press and hold the **[CE]** and **[CLEAR]** keys while switching on the console.
5. Release the **[CE]** and **[CLEAR]** keys. Photon goes through its boot up process and finally displays the main Service Tools menu.
6. The next step is configuring Photon.

Configuring Photon

You must tell Photon how many dimmers and channels, and scrollers you are running. The instructions below treat this subject at its simplest level. For more information see Chapter 16 System Configuration.

1. Looking at the main Service Tools menu, press **F3 Config System**.
2. Enter the number of channels, dimmers, and scrollers that you will be running.
3. Press **F6 Enter & exit**.
4. Press **F6 Store configuration**.
5. Switch off Photon.
6. Switch on Photon.
7. When the main Service Tools menu is displayed, press **F1 Cold Start**.

Patching

All the menus have easy to follow prompts that guide you through the various functions.

Patching should be done before recording any memories.

Photon has 2 Patch menus:

- Channel Patch (menu 1) - Soft patch dimmers to channels, assign dimmer curves, assign proportional patch, exchange dimmers, examine patch assignments, enable/disable General Master control, patch DMX Input.
- Scroller Patch (menu 20) - Patch scrollers to control channels, determine dark gel assignments, fine tune gel string placement.

Patching dimmers to channels

1. Go to the Channel Patch menu – **[MENU] [1] [ENTER]**.
2. Press **F1 Assign Dimmers**.
3. Enter a dimmer number in answer to the prompt.
4. Press **F3 To Channel**.
5. Enter a channel number in answer to the prompt.
6. Press **F1 Store**.

See Chapter 17 - Channel and Scroller Patching, for further information.

Patching scrollers to channels

1. Go to the Scroller Patch menu - – **[MENU] [20] [ENTER]**.
2. Select a scroller by entering the scroller number on the numeric keypad or by **[+]** and **[-]** to move the cursor (the colored bar) to the scroller you want.
3. Press **F1 Assign To Channel**.
4. Enter the channel number in answer to the prompt.
5. Press **F1 Store**.

See Chapter 17 - Channel and Scroller Patching, for further information.

Selecting channels & assigning intensity

1. Press **[CHANNEL]**.
2. Select the channel number on the numeric keypad.
3. Use the dimmer wheel or press **[FULL]**, **[ON]**. You can also press **[@]** and assign an intensity on the numeric keypad.

See Chapter 5 - Selecting & Editing Channels and Scrollers, for more information.

Selecting scrollers & assigning frames

1. Press **[CHANNEL]**.
2. Select the channel number on the numeric keypad.
3. Optional – Assign dimmer intensity.
4. Press **[FRAME]** and use the wheel to scroll the gel ribbon or assign a frame on the numeric keypad.

See Chapter 5 - Selecting & Editing Channels and Scrollers, for more information.

Programming Memories

1. Select channels using the numeric keypad.
2. Assign intensity using the dimmer wheel or press **[@]** and assign an intensity value using the numeric keypad.
3. Select a scroller channel.
4. Press **[FRAME]** and use the wheel to scroll the gel ribbon or assign a frame on the numeric keypad.
5. Press **[MEMORY]** or press **[=]**. (See Special Functions in Chapter 16.)
6. Enter the memory number using the numeric keypad.
7. Make fade time assignments by selecting the time in, time out, wait in, wait out, or delay and entering the time assignment on the numeric keypad.
   Press **[TIME #]** for time in.
   Press **[TIME] [TIME #]** for time out.
   Press **[WAIT #]** for delay.
   Press **[WAIT] [WAIT #]** for wait in.
   Press **[WAIT] [WAIT] [WAIT #]** for wait out.
8. Press **[STORE]**.
9. Press **[RESET]** to clear the editor or continue editing without resetting the editor.

See Chapter 6 - Programming Memories, for further information.

Playback Memories on A/B

1. Select a memory by pressing **[MEMORY]** and the memory number.
2. Press A or B. It is recommended to assign the memory to the inactive fader; if the fader is at A assign the memory to B, if the fader is at B assign the memory to A.
3. Move the fader so the memory is active on stage.
4. Press **[SEQ]**. The next memory is now on board.
5. Press **[GO]** to begin the crossfade from the active memory to the memory on board.

See Chapter 10 - The Crossfader, for further information.

Playback Chasers

1. Chasers are played back on the controllers.
2. Select a range of memories - **[MEMORY] [# →#]**. If the first memory has a loop assignment, select the first memory only.
3. Select the chaser playback mode by pressing **[HARD]** or **[SOFT]**.
4. Press the Soft Key, for one of the controllers. The SK LED flashes red.
5. Raise the controller handle.
6. Press **[GO]** to start the chaser.

See Chapter 11 - Controllers, for further information.

Recording a Show File

1. Put a formatted diskette in the floppy drive.
2. Press **[MENU] [5] [ENTER]** to go to the Record menu.
3. Press **F1 Play/Act**.
4. Enter a number for the show file using the numeric keypad.
5. Optional – Press **F2 Text** and type a label on the alphanumeric keyboard.
6. Press **F1 Press**.
7. Press **F1 Yes**.

See Chapter 9 - Data Storage and Retrieval.

CHAPTER 5
SELECTING AND EDITING CHANNELS & SCROLLERS

This chapter includes:

Selecting channels

- Selecting single channels
- Selecting non-sequential channels
- Selecting a range of channels
- Excluding channels from the range selection
- Reselecting the last channel selection
- Grabbing channels in the editor and on-stage

Assigning intensity levels

- Dimmer level assignments using @
- Repeating an intensity assignment

Releasing a channel from the editor.

Selecting and Editing Scrollers

- Assigning frame values
- Releasing a scroller from a memory

Selecting Channels

Single channels, groups of non-sequential channels, and a range of sequential channels can be selected.

There are special selection sequences that grab channels that are present in the editor together with channels active on stage.

There are several series of keystrokes to select one or more than one channel at a time. These keystrokes may be combined in any way lending great versatility to channel selection.

There are quite a few key combinations that can be used for channel selection. The object of the different key sequences is to make rapid selection possible.

The Wheel is used for intensity levels and scroller frame selection. Intensity and scroller frames may also be assigned on the numeric keypad.

If the Number Selection default is Channel, it is unnecessary to press **[CHANNEL]** before selecting the first channel number. The Number Selection default can also be Memory.

Selecting a single channel

Keypresses	Results/Comments
1. Press **[CHANNEL]**	Skip this step if the numeric selection default is channel
2. Enter the channel number on the numeric keypad.	
3. Press **[+]** or **[—]** to continue channel selection.	

When a new channel is selected, the previous selection is now displayed in white to indicate its presence in the editor. The newly selected, currently active channel number appears in red and may be assigned a dimmer level and scroller frame.

Selecting nonsequential channels

Keypresses	Results/Comments
1. Press **[CHANNEL]**	Skip this step if the Number Selection default is Channel
2. Enter the channel number on the keypad.	
3. Press **[CHANNEL]**	This acts as an “and” key.
4. Enter the channel number on the keypad.	
5. Repeat steps 3 and 4 as required.	

Selecting a range of channels

Keypresses	Results/Comments
1. Press **[CHANNEL]**	Skip this step if the numeric selection default is channel
2. Enter the first channel of the range on the keypad.	
3. Press **[→]**.	This singles a range selection.
4. Enter the last channel in the range, on the keypad.	

Reselecting the last channel selection

For editing speed Photon offers a sequence that reselects the last of group of channels that were selected (displayed in red) in the editor.

Keypresses	Results/Comments
1. Press **[CHANNEL]**	
2. Press **[•]**	Any channels that were selected and/or active in the editor are selected and appear in red; thus they are addressable by the wheel.

Grabbing channels in the editor and on stage

The are some specialized channel selection key sequences that allow you to grab channels that are in the editor and "on stage" (their output derives from a playback device).

In the examples below, channels 1, 5, 8, and 20 are present in the editor.

- **(CHANNEL) [5] [→] [→] [8]** selects channels 5 and 8. If there are channels within the selected range, whose output originates from A/B or the controllers they are also selected when using this sequence.
- **(CHANNEL) [→] [→]** selects all the channels present in the editor and on stage. This selection tool is useful when universally modifying all the channels contained in a memory. Example: you want to add 10% to all the intensity assignments in memory 1. The keypress sequence is: **[MEM 1] [CHAN [→ →] [wheel].**
- **[5] [→] [→]** selects channels 5, 8, and 20 and any channels on-stage.
- **(CHANNEL) [1] [→]** selects all the channels (from channel 1 to the last channel) in the system.
- **(CHANNEL) [1] [→] [8]** selects all the channels included in the range.

Assigning Intensity Levels

After selecting channels use the **[**@**]** key and the numeric keypad, the Dimmer wheel, or using the absolute intensity assignment keys **[FULL]** and **[ZERO]** to assign dimmer levels.

[FULL] brings the dimmer to 100% intensity.

[ZERO] forces the channel to 0% output.

[ON] assigns 50%. Accessed with the **[SHIFT]** key..

Dimmer level assignments using @

When using the **[@]** key, entering a single digit is understood as a whole decimal number (4 is 40%, 6 is 60%, etc.). If subdecimal intensity assignments, use the dot (4.5 = 45%, etc.).

If the system is defined 'USA' enter 45 on the keypad to obtain 45% and enter 60 on the keypad to obtain 60%. (See Chapter 16 System Configuration)

Example: Assign 70% intensity to channel 5.

Keypresses	Results/Comments
1. Press **[CHANNEL]**	Skip this step if the numeric selection default is channel
2. Select 5 on the keypad.	
3. Press **[@]**.	*Int* appears in the command line after the channel selection and channel 5 is displayed in red.
4. Press 7 If the system is defined as USA, press **70**.	**70** is displayed under the channel number on the channel display.

Example: Assign 73% intensity to channel 5.

Keypresses	Results/Comments
1. Press **[CHANNEL]**	Skip this step if the numeric selection default is channel
2. Select 5 on the numeric keypad.	
3. Press **[@]**.	*Int* appears in the command line after the channel selection and channel 5 is displayed in red.
4. Press **[7] [•] [3]** If the system is defined as USA, press **[7]** and **[3]**.	**73** is displayed under the channel number on the channel display.

Repeating an intensity assignment

You can repeat the last intensity assignment.

Example: Assign 33% to channel 1 and repeat the level assignment to the next channel you select. In the example below the intensity on channel 1 is repeated for channel 8.

Keypresses	**Results/Comments**
1. Select channel 1.	
2. Assign intensity level at 33% using the dimmer wheel.	You can also assign the level on the keypad.
3. Select channel 8.	
4. Press **[•]** (dot)	33% intensity is assigned to channel 8.

Releasing a Channel from the Editor

Select channels and remove them from the editor. The channel/s can be bumped out or faded out.

Keypresses	**Results/Comments**
1. Select the channel.	
2. Press **[RELEASE]**	The channel faders down. When it reaches 0% it is released from the editor.

Or

Keypresses	**Results/Comments**
1. Select the channel.	
2. Press **[ERASE]**	The channel bumps out.

Selecting and Editing Scrollers

If you have taken advantage of the Scroller Patch (see Chapter 17), scrollers are addressed by the channel number of the lighting fixture on which they are mounted.

The channel display shows a small 's' next to the channel number, indicating that this channel is a two parameter channel; One parameter being intensity and the other the scroller frame number.

The channel area of the Stage Display shows the channel and associated scroller information. Underneath the intensity level, the current frame position of the scroller is shown.

Color code for scroller channels

Color	What it means
Dark gray	Tracking
Red	Scroller channels selected in the editor. The frame value is displayed in green.
White	Scroller channels present in the editor. The frame value is displayed in green.
Blue or orange	Scroller channels output from A/B or controllers. The frame value is displayed in green.

Assigning frame values

Frames can be assigned using the numeric keypad or the wheel. If you use the wheel to assign frame values, it is not necessary to press **[FRAME]**.

When using the numeric keypad:
If the system is configured for at least 10 frames, you must enter frame 1 as **01**.
If the system is configured for at least 20 frames, you must enter frame 2 as **02**.
If the system is configured for at least 30 frames, you must enter frame 3 as **03**.

Partial frames can also be entered on the numeric keypad.
Examples: **[FRAME] [1] [•] [6]** or **[FRAME] [11] [•] [8]**.

In the example below channel 5 is the control channel. Assign frame 11.

Keypresses	**Results/Comments**
1. Select channel 5.	
2. Optional–assign intensity.	
3. Press **[FRAME]**	The frame value is displayed in green, meaning that the scroller is selected in the editor and is ready for a value assignment. If intensity is assigned the channel number is displayed in red. If no intensity is assigned only the 's' denoting scroller is displayed in red.
4. Enter **11** on the keypad.	
5. To assign a different frame value, press **[FRAME]** again and enter a frame number.	

➢Note

Instead of step 5 **[+]** and **[-]** can be used to go to the next or previous scroller frame.

CHAPTER 6
PROGRAMMING MEMORIES

This chapter includes:

Resetting the editor
Programming with channels
Programming with scrollers
Sequential memory programming
Programming a blackout cue
Using the Call function
    Using call to store the current lighting state
    Using call and assignments to program memories
    Merging selected output sources in the editor
    Editing after call
    Calling the split crossfader
    Call and the general master
Examining memories & channels
    Examining memories
    Examining channels
Text for memories
Programming in blind mode
    Clearing the blind editor
Fade times
    Assigning fade times to a memory
    Assigning fade times to a range of memories
    Assigning fade times to non-sequential memories
    Modifying time assignments
Converting memories to editor groups
Inserting a memory
Memory operations in the editor
Memory Operations menu
Mask

Programming Memories

Memories are programmed by assigning a number to the editor group of channels and storing the lighting state.
Fade, wait, and delay times can be assigned to each memory. Other memory attributes are Loops and Links.

Select channels and assign intensity/parameter values in the editor. Store the resulting lighting state as a memory. Programming using the editor can be done in Live or Blind mode. (Refer to Chapter 5 for information about channel and scroller selections and values assignments.)

The keys **[=]**, **[STORE]**, **[+1STORE]**, and **[MEMORY]** are used for storing memories.

Key	What it does
[=]	After creating a lighting start, pressing [=] signals the console that you are ready to record the ediotr group is a memory. After **[=]** is pressed the console waits for a memory number. Memory is displayed in the command line. **[MEMORY]** is used instead of **[=]** when the system is confiugred as USA System (see Chapter 16 – System Configuration /Service Tools/Config Sys).
[STORE]	After assigning a memory number to the editor group press **[STORE]** to save the memory. All channels remain in the editor, displayed in white. You can continue editing the lighting state to form the next memory.
[+1STORE]	This key can be used instead of **[STORE]**. Do not enter a memory number. This key increments the last stored memory number by the increment as defined in the System Paraemters menu (see Chapter 16 System Configuration). Example: If the default increment is 1 and the last recorded memory is 20, the memory recorded by pressing **[+1STORE]** is 21. If the defautl increment is 5 and the last recorded memory is 20, the memory recorded by pressing **[+1STORE]** is 25. The key sequence **[=] [+] [STORE]** enters the next memory number; the last stored memory plus 1.

After storing a memory the participating channels remain in the editor. You can continue programming memories using the channels in the editor or you can press **[RESET]** and clearthe editor.

Groups or memories assigned to controllers or the A/B crossfader can be used as building blocks to construct a lighting state. In this case, the lighting state is entered into the editor using the Call function. The group in the editor is then assigned a memory number and stored. (See Chapter 11 to find out how to assign groups and memories to Controllers.)

Displays

When you store a memory Photon generates a confirmation message: *Memory # Stored*.

If the memory number that you assigned to the lighting state is already used, the message *Memory Exists* is displayed.

The last memory stored is displayed at the right of the command line preceded by *L*.

The last memory is temporarily replaced when a memory converted to an editor group. Instead of *L #*, *E#* is displayed.

Programming with Channels

Example: Select channel 1, assign 45% intensity, and record as memory 1.

Keypresses	**Results/Comments**
1. Press [**CHANNEL] [1]**	*channel 1* appears in the command line.
2. Press **[@]**	If you use the {dimmer} wheel skip this step and step 3.
3. Press **[4] [•] [5]**	Entering 4 on the keypad results in an intensity assignment of 40%. Use •(dot) to enter intensity less than a round 10. Example: 4.5 is an intensity of 45%. If system is configured for USA enter the intensity number without the decimal point (e.g. enter 45).
4. Press **[=]**	*Memory* appears in the command line. If the system configuration is for USA (Service Tools/config sys) press **MEMORY** instead of **=**.
5. Press **[1]**	Select the memory number.
6. Press **[STORE]**	The message *Memory 1 Stored* is displayed. The channels are retained in the editor, but are no longer selected. They are displayed in white.
7. Continue editing or press **[RESET]**	

If you attempt to record to a memory number that is already in use, the message *Memory Exists* is displayed.

If you do not want to overwrite the existing memory:

1. Enter a different number.
2. Press **[STORE]**

To overwrite the existing memory:

1. Press **[STORE]** again.

Programming with Scrollers

The example below uses the numeric keypad to assign the frame number. You can, however, address the scroller using the the wheel. Using the wheel obviates pressing **[FRAME]**.

Example: select scroller channel 10, set the dimmer level to 100%, set the scroller frame at 2, and record as memory 2.

Keypresses	Results/Comments
1. Select channel 10	
2. Press **[FULL]**	Channel 10's dimmer is at 100%.
3. Press **[FRAME]**	If you elect to assign the frame value using the wheel, skip steps 3 and 4.
4. Enter 02 on the keypad.	Enter the frame number as 2 digits.
5. Press **[=]**	*Memory* appears in the command line. If the system configuration is for USA you can press **[MEMORY]** instead of **[=]**.
6. Enter 2 on the keypad	
7. Press **[STORE]**	The message *Memory 2 Stored!* is displayed. The editor is not cleared.

Using the Copy Function

The Copy function allows you to copy channel intensity assignments and scroller frame assignments from values in the editor and from values stored in memories.

Copying channel intensities from the editor

Example: Copy the intensity value assigned to channel 5 to channels 20 – 25. The example below assumes that channel 5 has an intensity in the editor.

Keypresses	Results/Comments
1. Select channels 20 → 25.	These are the target channels.
2. Press **[COPY]**	*Copy from* appears in the command line.
3. Select channel 5.	Select the channel being copied from.
4. Press **[ENTER]**	The intensity is copied to channels 20 – 25.

Copying channel intensities from a memory

Example: Copy the intensity value assigned to channel 5 in memory 3 to channels 20 – 25.

Keypresses	Results/Comments
1. Select channels 20 – 25.	Select the target channels.
2. Press **[COPY]**	*Copy from* appears in the command line.
3. Select memory 3.	
4. Select channel 5.	Select the channel being copied from.
5. Press **[ENTER]**	The intensity is copied to channels 20 – 25.

Copying scroller frames from the editor

Example: Copy the frame assigned to scroller channel 5 to scroller channels 20 – 25. The example below assumes that channel 5 is assigned a frame value in the editor.

Keypresses	Results/Comments
1. Select channels 20 → 25.	Select the target channels.
2. Press **[FRAME]**	
3. Press **[COPY]**	*Copy from* appears in the command line.
4. Select channel 5.	Select the channel being copied from.
5. Press **[ENTER]**	The channel 5's frame value is copied.

Copying scroller frames from a memory

Example: Copy frame assignments to channel 5 in memory 3 to scroller channels 20 – 25.

Keypresses	Results/Comments
1. Select channels 20 – 25.	Select the target channels.
2. Press **[FRAME]**	
3. Press **[COPY]**	*Copy from* appears in the command line.
4. Select memory 3	
5. Select channel 5.	Select the channel being copied from.
6. Press **[ENTER]**	The channel 5's assignment is copied.

Programming a Blackout Cue

Blackout cues are created by recording a memory when the editor is empty. This can be done in live or blind mode.

In the Memory List in the text column, blackout cues are automatically given the texzt 'Blackout'.

When you examine blackout memories the message *This Memory is a Blackout'* is displayed.

Example: Record memory 8.5 as a blackout.

Keypresses	Results/Comments
1. Press **[RESET]**	All channels are cleared from the editor and the editor is in idle mode.
2. Press **[=] [8] [•] [5]**	
3. Press **[STORE]**	

Sequential Memory Programming

Storing a memory does not, as you have seen, automatically clear the editor. This permits building memories sequentially, using the channels left in the editor to program the next memory..

Example: Program a memory with channel 1. After storing the memory channel 1 is retained in the editor. Now program the next memory by adding a few channels to the current editor.

Keypresses	Results/Comments
1. Select channel 1 and assign intensity.	
2. Press **[=] [1] [STORE]** to store the memory.	Channel 1 remains in the editor.
3. Select channels 8 → 10.	
4. Assign intensity values.	When the wheel is moved the selected channels are displayed in red.
5. Press **[+1STORE]** Or Press **[=] [2] [STORE]**	

➢**Note**
Channels that are selected in the editor (displayed in red) remain selected after storing a memory using **[+1STORE]**.

Using the Call Function

The Call function merges all or part of the console's output in the editor and store it as a memory. Merged output becomes an editor group. This editor group can be modified or recorded as a new memory.

Some ways to use the Call function are:

- Merge the output from the crossfader, controllers, and editor and store as a memory.
- Merge the output from selected playback devices only and store as a memory.
- Merge the entire output or selected output.
- Merge DMX input

After storing the editor group the participating channels are either released from the editor or retained in the editor. The editor retains control of channels whose release will cause a change in the current lighting state. This occurs when the channel is active in the editor only or if it has been called to the editor from a playback device and modified. Channels that have been called into the editor from a playback device (A/B and controllers) and not modified are released from the editor after **[STORE]** is pressed because this does not change the lighting state.

To remain in the current lighting state, after storing the merged output, assign the new memory to the crossfader and press **[RESET]**. To revert to the lighting state previous to storing the merged output just press **[RESET]**.

This discussion presumes that a memory or group is assigned to crossfader. See Chapter 10 for assigning memories and groups to the A/B crossfader.

Using Call to store the current lighting state

Assume that the console's output is a memory active on A. After making some modifications to the lighting state you decide to store the resulting stage picture as a new memory.

Keypresses	**Results/Comments**
1. Assign a memory to A and move the both crossfader handles to the top end stop.	
2. Press **[CALL]**	*Call* appears in the command line.
3. Select and modify channels in the memory on A. Select new channels and assign values.	
4. Select a memory number on the keypad.	*Memory* appears in the command line and the console is waiting for a memory number.
5. Press **[STORE]**	The new memory is stored. The editor is not released in order to retain the stage picture.

➢Tip

You can press **[+1STORE]** if you wish to record to the next memory number plus the increment defined in the System Parameters menu or **[+]** and **[STORE]** to store the last recorded memory plus 1.

Using Call and controller assignments

You can use Controller assignments as building blocks to create a lighting state and record the lighting state as a memory. . (See Chapter 11 for information about assigning memories and groups to Controllers).

Example: A three-color cyclorama wash is assigned to Controllers 1 - 3. By combining the 3 colors at different levels, you create the desired color. You now want to record this as memory 5. There is no other output from any other playback device or from the editor.

Keypresses	Results/Comments
1. Create a lighting state using the controller assignments.	
2. Press **[CALL]**	*Call* appears in the command line.
3. Press **5** on the keypad.	The entire console output is entered to the editor and appears in white. *Memory* appears in the command line.
4. Press **[STORE]**	The message: *Mem 3 Stored* is displayed. The editor is released.

➢Note

Values entering the editor via call always override the editor values of channels held in common.

Merging selected output sources

Pressing the key associated with a specific output source calls the assignment to the editor. More than one selection may be pressed in sequence. After collecting all the output, store the result using the usual memory recording procedure

Use this function when you only want to Call some of the active playback devices.

Example: A three-color cyclorama wash is assigned to controllers 1 – 3. By combining the 3 colors at different levels, you create the desired color. . There are also active assignments on A, and controllers 11 - 15. You want to record only the cyclorama wash, output from controllers 1, 2, and 3, as memory 5.

Keypresses	Results/Comments
1. Press **[CALL]**	
2. Press the controller 1's SK	The output from controller 1 is turned into an editor group.
3. Press the controller 2's SK	The output from controller 2 joins the editor group.
4. Press the controller 3's SK	The output from controller 3 joins the editor group.
5. Press **[=] [5]** or **[MEMORY] [5]**	
6. Press **[STORE]**	The merged output from controllers 1, 2, and 3 are stored as memory 5. The editor is retained.

Editing after Call

All of the output merged in the editor is available for further editing. The editor is not released after storing the memory.

Keypresses	Results/Comments
1. Press **[CALL]**	
2. Press **[ENTER]**	All active output is merged as an editor group.
3. Select and modify channels.	
4. Press **[=] [#]**or **[MEMORY] [#]**	Set the system to memory record mode and select a number.
5. Press **[STORE]**	The editor is not released.

Calling A/B

When the A/B is split (A is off its end stop and so is B) using Call brings the the sum of the crossfader to the editor.

Example: Crossfader A is at 50% and the output of A is channels 1 → 5 at 35%. Crossfader B is at 60% and the output of B is channels 33 → 40 at 25%.

Keypresses	Results/Comments
1. Press **[CALL]**	
2. Press **[A]**	The sum of the output of crossfaders A and B becomes a group in the editor. Therefore, the editor now contains channels 1 → 5 at 35% and channels 33 → 40 at 25%.

Call and the General Master

There is an additional Call function using the General Master level. The discussion below assumes that the maximum G.M. level is set to 100%, if the maximum G.M. level is set to 200% the same rules still apply.

When the General Master is less than 100% and you press **[CALL]**, the console output enters the editor forced to the General Master level. You can store the result as a memory.

This function can be used only when merging the entire output. It cannot be used when merging the output from selected playback devices.

Programming a new memory using the G.M. level

Example: Mem 1 contains channels 1 thru 7 @ Full. Channel 9 is assigned to controller 5. Mem 1 is on A, at its upper end stop, and active on stage. Controller 5 is at 50%; therefore the output on channel 9 is 50%. Move the General Master to 50%. The G.M. display is now red and shows 50%.

Keypresses	Results/Comments
1. Press **[CALL]**	
2. Press **[→]**	The G.M. is forced to 100%; the G.M. level is displayed in red and flashes. The console is waiting for a memory number.
3. Enter a memory number and press **[STORE]**	Referring to the above example, the resulting memory will be channels 1 thru 7 @ 50 and channel 9 @ 25. The G.M. returns to its true level and is no longer forced to 100%. If there were any channels in the editor, they are not released so as not to cause a sudden change in the stage picture.

➢Note

When you are storing to a new memory number or a memory that is not active on board, the editor clears, and the forcing 100% of the G.M. is canceled, i.e. the G.M. is at 50%.

Storing to the currently active memory

Example: Memory 1 is active on A. You want to modify memory 1 by adding all the other active asignments and reducing the intensity levels by 20%.

Keypresses	Results/Comments
1. Set G.M. level to 80%.	
2. Press **[CALL]**	Enables the call function.
3. Press **[→]**	The G.M. is forced to 100%; the G.M. display is displayed in red and flashes.
4. Enter the 1 on the keypad.	
5. Press **[STORE]**	The message *Memory 1 on Board* is dsplayed.
6. Press **[STORE]**	The message *Memory 1 Stored* is displayed. The G.M continues flashing.

➢Note

When you are storing to the active memory and the fader handle is not at its full limit, the G.M. remains at forced 100% and the editor is not cleared. To avoid a jump in the light return the fader its Full end stop, return the G.M. to 100%, and clear the editor.

Examining Memories & Channels

[PAGE UP] and **[PAGE DN]** page the channels in the Exam.

Use **[+]** and **[—]** to view the next or previous memory or channel.

Press **[STAGE]** to exit Exam displays and return to the current display format.

Examining memories

There are two memory Exams available: the Memory List and selected memories.

The Memory List is a sequential list of memories.

Examining selected memories shows the channels in the memory. Part, loop, and time assignments.

Viewing the memory list

The Memory List shows Loop, Link, and time assignments. The text column displays any text labels for the memory and Event assignments. The character before each memory shows the generic contents of the memory:

Keypresses	Results/Comments
1. Press **[MEMORY]**	
2. Press **[EXAM]**	The Memory List is displayed starting from the first memory.
3. Press **[PAGE DN]** to page through the memory list.	

You can exam the Memory List beginning from any memory. Example: View the Memory List starting from memory 55.

Keypresses	Results/Comments
1. Press **[MEMORY]** and enter 55 on the keypad.	
2. Press **[→]**	
3. Press **[EXAM]**	The Memory List is displayed starting from memory 55.
4. Press **[PAGE UP]** or **[PAGE DN]** to page.	

Examining a selected memory

Keypresses	Results/Comments
1. Press **[MEMORY]**	
2. Select the memory you want to examine	
3. Press **[EXAM]**	The display includes channels with intensity and scrollers, fade times, Event assignments, and text.
4. Press **[+]** or **[-]** to view the next or previous memory.	The intensity levels are color coded to show the change from the previously examined memory. – - –

Color Key for Memory Exam

The color code is displayed at the bottom of the Exam screen

Color	What it means
Yellow	Intensity increased
Brown	Intensity decreased
Orange	No change

Examining channels

There are 4 channel displays:

- Free channels - Channels not used in any memories
- Assigned channels - Channels used in memories
- Selected channels – A list of the channel assignment in memories and its intensity, and scroller levels.
- Track sheet - Tracks all the channels through all the memories.

Viewing free or assigned channels

Keypresses	Results/Comments
1. Press **[CHANNEL]**	
2. Press **[EXAM]**	A list of channels that are not used in any memory is displayed.
3. Press **[EXAM]**again	A list of channels used in the memories is displayed.

Viewing a selected channel

Keypresses	Results/Comments
1. Press **[CHANNEL]**	
2. Enter the channel number on the numeric keypad.	
3. Press **[EXAM]**	A list of the memories where the channel appears and its the intensity and scroller frames (if present) is displayed.

Viewing the tracksheet

Use **[PAGE UP]** and **[PAGE DN]** and the arrow keys on the alphanumeric keyboard to move around this display.

Keypresses	Results/Comments
1. Press **[CHANNEL]**	
2. Press **[MEMORY]**	
3. Press **[EXAM]**	The track sheet is displayed starting from the first assigned channel and the first memory.

You can also view the track sheet beginning from a selected channel.

Keypresses	Results/Comments
1. Press **[CHANNEL]** and enter a number on the keypad.	
2. Press **[MEMORY]**	
3. Press **[EXAM]**	The track sheet is displayed starting from the selected channel.

Other sequences are:

[CHANNEL] [#] [→] [MEMORY] [EXAM]

[CHANNEL] [#] [→] [#] [MEMORY] [EXAM]

[CHANNEL] [MEMORY] [#] [EXAM]

Text for Memories

You can attach text label to memories, thus creating a 'cue sheet'. This text can be a short cue line, a page number, a score reference number, etc. You can enter approximately 40 characters.

Example: You want to add a text label to Memory 25.

Keypresses	Results/Comments
1. Select memory 25.	
2. Press **[TEXT]**	*Text* appears in the command line.
3. Type *'house lights up. interval'*	All typing is done on the alphanumeric keyboard.
4. Press **[STORE]**	The text is displayed in the last column in the Memory List.

Programming in Blind Mode

Photon contains a blind editor.

When switching to Blind mode the channels present in the live editor are captured and displayed in blind mode.

If the channels captured from the live editor are not required in the blind editor press **[RESET]**, while in blind mode, to release them from the blind editor. This does not affect the live stage output, as it only clears the blind editor and not the live editor.

During Blind editing, any modification done to the channels that were transferred from the live editor does not affect the same channels that are still present in the live editor

Example: Program memory 7 in Blind mode with channels 2 - 8.

Keypresses	Results/Comments
1. Press **[BLIND]**	*Blind*, on a red field, is displayed in the top center of the screen.
2. Select channels 2 → 8.	
3. Assign intensity values	
4. Press **[=] [7]**	
5. Press **[STORE]**	
6. Press **[BLIND]**	Exit blind mode. The stage output reappears in the display. The blind editor is not cleared.

Resetting the blind editor

Exiting Blind mode does not clear the Blind Editor. All channels active in Blind mode are retained in the Blind editor until it is reset.

Keypresses	Results/Comments
1. Before exiting Blind mode, press **[RESET]**	The channels present in the blind editor are released.

Fade Times

Time-in, time-out, delay, wait-in, and wait-out times may be assigned to memories. All fade times are counted from the Go command on the A/B crossfader. If no time assignments are recorded, the editor automatically assigns the Memory Default Time, as defined in the System Parameters menu (see Chapter 16 System Configuration).

If no time-out assignment is made the memory fading out will automatically adopt, as fade out time, the fade in time of the incoming memory.

Example: If memory 4 has a 6 count time-in assignment and memory 3 has no time-out assignment; memory 3 will fade out in 6 counts when crossfading from memory 3 to memory 4.

Press **[0]** or **[•]** for a CUT (bump) fade time.

Use **[•]** to enter fractional times like 1.5 seconds, 0.5 seconds, etc.

The keys used to assign fade times are: **[TIME]** and **[WAIT]**

Keypress	Time Assignment
[TIME]	**Time – in** When a go command is received, all the channels fading to a higher intensity begin their fade. The fade takes place in the assigned time.
[TIME] [TIME]	**Time – out** When a go command is received, all the channels fading to a lower intensity begin their fade. The fade takes place in the assigned time.
[WAIT]	**Delay** Delay applies to the entire crossfade. The same effect can be achieved by assigning both a wait-in and wait-out time.
[WAIT] [WAIT]	**Wait – in** When a go command is received, all the channels fading to a higher intensity begin to count the assigned wait-in time before beginning their fade.
[WAIT] [WAIT] [WAIT]	**Wait – out** When a go command is received, all the channels fading to a lower intensity begin to count the assigned wait –out time before beginning their fade.

Assigning fade times while programming memories

Example: Store memory 7 with fade times.

Keypresses	Results/Comments
1. Create a lighting state.	
2. Press **[=] [7]**	
3. Press **[TIME] [6]**	The message *Memory 7 Stored* is displayed and *time-i* is displayed in the command line. The incoming channels in memory 7 will fade up in 6 seconds.
4. Press [**TIME] [8]**	*time-o* is displayed in the command line. The channels fading to a lesser intensity, when crossfading between memory 6 and memory 37 take 8 seconds to complete their fade.
5. Press **[WAIT] [WAIT] [2]**	*wait-in* is displayed in the command line. The incoming channels in memory 7 will wait 2 seconds before beginning their fade.
6. Press **[WAIT] [2]**	*wait-o* is displayed in the command line. The channels fading to a lesser intensity, when crossfading between memory 6 and memory 7, will wait 2 seconds to beginning their fade.
7. Press **[STORE]**	The message *Memory 7 Stored* is displayed.

You can assign a Delay time instead of steps 5 and 6

➢**Tip**
If you have neglected to enter the fade time assignments before pressing [STORE]:

1. Press **[TIME]** or **[WAIT]**. The command line displays the last recorded memory number. Enter the desired fade time.
2. Press **[STORE]** and record the memory with its time assignments.

Assigning fade times to a range of memories

Identical fade times can be assigned to a range or a group of memories

Example: Assign a 10 second time-in to memories 1 → 6.

Keypresses	Results/Comments
1. Select memories 1 → 6	
2. Press **[TIME]**	*time-i* is displayed in the command line.
3. Enter 10 on the keypad.	
4. Press **[STORE]**	The new fade time assignments are stored to the selected range of memories.

Assigning fade times to non-sequential memories

A group of non-sequential memories may also be assigned identical fade times.

Example: assign 10 seconds time-out to memories 2, 6, and 8.

Keypresses	**Results/Comments**
1. Press **[MEMORY] [2]**	
2. Press **[MEMORY] [6]**	The memory list is displayed and the selected memories appear on a red field.
3. Press **[MEMORY] [8]**	
4. Press **[TIME] [TIME]**	*time-o* appears in the command line. Stage display is now on view.
5. Enter 10 on the keypad.	
6. Press **[STORE]**	The new fade time assignments are stored to the selected memories.

Modifying time assignments

The example below shows how to modify a time-in assignment. Other time assignments use the same procedure; just press the time assignment keys the requisite number of times until the unit you need appears in the command line

Keypresses	**Results/Comments**
1. Select a memory or a range or a group of memories.	
2. Press **[TIME]**	The time assignment is displayed in the command line.
3. Assign a new time value.	
4. Press **[STORE]**	Store the new fade time information.

Converting Memories to Editor Groups

Memories can be converted to groups in the editor and used as building blocks for new memories.

The key sequences for converting a memory to an editor group are dictated by whether the editor is empty or not.

The intensity and scroller values in memories converted to an editor group overwrite any editor values for channels in common. Example: You are converting memory 1 to an editor group. In memory 1 channel 5 is at 80%. Channel 5 is ain the editor at 35%. When you convert memory 1 to an editor group, channel 5 receives the 80% intensity level from the memory.

Converting a memory when the editor is empty

Example: Convert memory 4 to a group in the editor, edit, and store the lighting state as memory 5.

Keypresses	**Results/Comments**
1. Select memory 4.	
2. Press **[ENTER]**	The contents of mem 4 (channels and intensity/scroller assignments) are converted to group in the editor. The channels are displayed in white. Notice that after pressing **[ENTER]**, *Memory 4* disappears from the command line. This assures that you are working on an editor group and not a memory. The last memory display is rplaced by the memory entered. *E #* is displayed to the right of the command line.
3. Select and edit channels.	
4. Press **[=]**	*Memory* is in the command line.
5. Enter 5 on the keypad.	
6. Press **[STORE**	The message *Memory 5 Stored* is displayed.

One or more memories can be converted to an editor group.

Example: Convert memory 4, 5, 6, and 7 to a group in the editor, edit, and store the lighting state as memory 5. Notice that you must select each memory and not use the range selection sequence.

Keypresses	**Results/Comments**
1. Press **[MEMORY] [4]**	
2. Press **[MEMORY] [5]**	The memory list is displayed and the selected memories appear on a red field.
3. Press **[MEMORY] [6]**	
4. Press **[MEMORY] [7]**	
5. Press **[ENTER]**	The contents of mem 4 (channels and intensity/scroller assignments) are converted to group in the editor.
6. Select and edit channels.	
7. Press **[=]**	*Memory* is in the command line.
8. Enter 5 on the numeric keypad.	
9. Press **[STORE]**	The message *Memory 5 Stored* is displayed.

Converting a memory to a group when the editor is active

If the editor is active you must use a slightly different key sequence.

Parameter and intensity values from the converted memory override the values for channels currently active in the editor.

Example: You want to use memory 2 as a building block to create memory 6. Memory 2 is channels 2 - 6 at 65%. Channels 2 - 6 at 50% are present in the editor and displayed in red.

Keypresses	**Results/Comments**
1. Press **[ENTER]**	The channels selected in the editor (highlighted in red) turn white indicating that they are present, but not addressable until selected again.
2. Select memory 2.	
3. Press **[ENTER]**	The selected memory is converted to an editor group. The intenisty value for the selected channels are forced to 65%.
4. Continue editing the group of channels.	
5. Press **[=] [6]**	
6. Press **[STORE]**	The message *Memory 6 Stored* is displayed.

Inserting a Memory

Example: Insert a memory between memories 3 and 4.

Keypresses	Results/Comments
1. Create a lighting state.	
2. Press **[=]**	*Memory* appears in the command line.
3. Press **[3 [•] [5]**	
4. Press **[STORE]**	Memory 3.5 is inserted between memories 3 and 4.

➢**Tip**
If the memory being inserted between memories 3 and 4 is an outgrowth of 3 (for instance), create your lighting state by using the sequence **[MEMORY] [3] [ENTER]**, edit, and then follow steps 3 – 4.

Memory Operations in the Editor

Memories can be copied, renamed, and erased in the editor or in the Memory Operations menu. These operations cannot be carried out on memories that are assigned to controllers or A/B cannot be erased even if the playback device is not active. You must free the assignment before attempting to copy, rename, or echanged a memory.

Renaming and exchanging memories

You can give a new number to a memory if the new number is not in use. If the new number is in used by another memory, the memories are exchanged.

Time assignments, text, Loops, Event assignments, and Parts remain intact.

Example: Rename memory 5 as memory 10. At present there is no memory 10.

Keypresses	Results/Comments
1. Select memory 5.	
2. Press **[=]**	*Change to* → appears in the command line.
3. Press [**MEMORY] [10]**	
4. Press **[STORE]**	The message *Memory 10 Stored* is displayed. The contents of memory 5 have been renamed as memory 10. Memory 5 no longer appears in the Memory List.

Exchanging memories switches the contents of 2 memories.

Example: Memory 5 is channel 5 @ 30. Memory 10 is channel 10 @ Full. when the memories are exchanged Memory 5 is channel 10 @Full and memory 10 is channel 5 @ 30.

Keypresses	**Results/Comments**
1. Select memory 5.	
2. Press **[=]**	*Change to* → appears in the command line.
3. Press [**MEMORY] [10]**	
4. Press **[STORE**	The message *Memory 10 Stored* is displayed. The contents of memory 5 and memory 10 are exchanged.

Copying memories

You can copy the contents of a memory to a new memory.

Only channels, and their intensity or frame values are copied. This does not copy time assignments, Loops, or Event Assignments.

To copy a memory including any time assignments, text, Loops, and Event Assignments, perform the copy function in the Memory Operations menu.

Example: Copy memory 2 to memory 8.

Keypresses	**Results/Comments**
1. Select memory 2.	
2. Press **[ENTER]**	The channels with their intensity/frame values appear as an editor group.
3. Press **[=]**	
4. Enter 8 on the keypad.	
5. Press **[STORE]**	Only the contents of the memory (channels, intensity assignments, scroller values,) are copied.

➢**Note**
If the new memory number that you have selected is in use, the message *Memory Exists* is generated. You can overwrite by pressing **[STORE]** again.

Erasing memories

Single memories, non-sequential groups of memories, and a range of memories can be erased.

The system always asks for confirmation when erasing memories.

Erasing a single memory

Keypresses	Results/Comments
1. Press **[MEMORY]** and enter the memory number on the keypad	
2. Press **[ERASE]**	The message *Are You Sure??* is displayed.
3. Press **[ERASE]**	The message *Memory(s) Deleted* is displayed.

Erasing a group of non-sequential memories

Keypresses	Results/Comments
1. Press **[MEMORY]** and enter the memory number on the keypad	
2. Repeat step 1, selecting all the memories for erasure.	The memory list is now displayed. The selected memories appear on a red field. Repeat this step as many times as needed.
3. Press **[ERASE]**	The message *Are You Sure??* is displayed.
4. Press **[ERASE]**	The message *Memory(s) Deleted* is displayed.

Erasing a range of sequential memories

Keypresses	Results/Comments
1. Select a range of memories.	
2. Press **[ERASE]**	The message *Are You Sure??* is displayed.
3. Press **[ERASE]**	The message *Memory(s) Deleted* is displayed.

The Memory Operations menu

The Memory Operations menu is menu number 3.

The Rename, Copy, Exchange, and Delete memories are functions that may be carried out in the Memory Operations menu as well as in the editor.

The memory list is displayed in this menu, so all the necessary information for carrying out these different functions is available on screen.

Use **[PAGE UP]** and **[PAGE DN]** to page the Memory List.

The behavior of these functions, in the editor and in the Memory Operations menu is basically identical except for the copy memory operation.

Renaming memories

Individual memories or a range of memories can be renamed.

Renaming a memory transfers all the information, including all channel, scroller, time, text, Loops, and Event Assignments.

Renaming or copying a memory clears any link assignments.

Example: Rename the range of memories 1 - 10 as memories 101 - 110.

Keypresses	**Results/Comments**
1. **[F1] Rename Memory**	The prompt *Rename memory #* appears.
2. Enter 1 on the numeric keypad.	
3. Press **[F2] Thru Memory**	You can press **[→]** on the console panel instead of **[F2]**. The console prompts for the last memory in the range selection.
4. Enter the last memory of the range, in this example – 10.	
5. Press **[F1] As Memory #**	The prompt *As memory #* appears.
6. Enter 101 on the numeric keypad.	Enter the first number of the new range.
7. Press **[F1] Store**	The system asks for confirmation of the store command with the prompt *Are you sure?*
8. Press **[F1] Yes**	A window opens at the bottom of the screen, showing the results of the rename function. Memory numbers 1 → 10 no longer appear in the Memory List.

Copying a memory

This function copies the contents from the selected memory to a new memory number. The new memory is a replica of the original memory; all memroy attributes are copied except Links.

You can copy single memories or a range of memories. If you want to copy memory 1 to memory 100, 2 to 101, and 3 to 102, it is necessary to enter only memory 100 when answering the prompt for the new memory number. The system automatically copies the range of memories in sequential order.

If you copy a range of memories that includes sub-decimal memories the new memories retain the sub-decimal format. Example: copying the range of memories 2, 3, 3.5, 4, and 6 to memory 10, results in memories 10, 11, 11.5, 12, and 14.

Keypresses	Results/Comments
1. Press **[F2] Copy Mem**	The prompt *Copy mem #* appears.
2. Enter the number of the memory you want to copy.	
3. Optional – select a range of memories.	
4. Press **[F1] To Mem #**	You are prompted to enter the new memory number.
5. Press **[F1] Store**	The prompt *Are You Sure ???* appears. Check that you have entered the information correctly.
6. Press **[F1] Yes**	A window opens at the bottom of the screen, showing the results of the copy function.

Deleting memories

Delete single memories or a range of memories.

Keypresses	Results/Comments
1. Press **[F3] Delete**	Select the delete function. The system prompts you for the memory number.
2. Enter the number on the numeric keypad.	
3. Optional – select a range of memories.	
4. Press **[F1] Store**	The prompt *Are You Sure ???* appears.
5. Press **[F1] Yes**	The selected memory/range of memories is deleted.

Deleting all the memories

The Clear Console option deletes all memories. Be sure to record the current memories if you want to save them.

Keypresses	Results/Comments
1. Press **[F5] Clear Console**	A reminder to record your show is displayed.
2. Press **[F1] Yes**	All the memories are deleted and you are returned to the Main Menu screen.

Mask

Mask is a channel selection function. The Mask function accesses memories and selects the channels included in the selected memory. Only channels are selected. Intensity and scroller frames are ignored. If some of the channels are already active in the editor their levels will not be affected. You can edit the entire selection as a group or select specific channels for modification.

Mask is used to create groups of channels. Example: Memory 800 includes all of the channels that comprise the blue backlight. Select all of the blue backlight by accessing the memory 800 using the Mask function.

Controllers accept mask assignments as groups.

[MASK] shares a key with **[FRAME]**. Access **[MASK]** using **[SHIFT]**.

Selecting a mask

Example: Memory 2 consists of channel 2 - 8 and channels 13 - 16.

Keypresses	Results/Comments
1. Press **[MASK] [2]**	This selects memory 2
2. Press **[@]** and assign intensity on the keypad Or Use the Dimmer wheel	Assigning intensity selects all the channels in memory 2 (they appear in red).

Selecting a range of masks

Example: Select the channels in memories 2 → 6.

Keypresses	Results/Comments
1. Press **[MASK] [2]**	Select the first mask of the range.
2. Press **[→]**	
3. Press **[MASK] [6]**	
4. Assign intensity	All the channels contained in memories 2 → 6 are selected in the editor.

Assigning a mask to a controller

Keypresses	Results/Comments
1. Press **[MASK] [#]**	Select mask.
2. Press **[ASSIGN]**	
3. Press the **[SK]**	A mask controller assignment is designated as *grp*.

Selecting channels from assignments

If a memory is assigned to any crossfader or controller the following key sequence selects the channels included in the assignment and put them under editor control.

Keypresses	Results/Comments
1. Press **[MASK]**	
2. Press **[ASSIGN]**	Ascertain that the controllers are in assign mode.
3. Press **[SK]** or **[A]** or **[B]**	The channels assigned to the source are now selected as a group in the editor. You can proceed to edit the editor group.

Chapter 7
LOOPS & LINKS

This chapter includes:

Loops

- Programming an automatic continuous Loop
- Programming a manual continuous Loop
- Programming a finite Loop
- Programming an autofollow Loop
- Programming a follow-on cue
- Erasing Loop assignments
- Erasing an autofollow Loop assignment

Links

- Programming a Link between 2 memories
- Programming Links among a group of memories
- Erasing a Link assignment
- Viewing Links

Loops

The Loop function strings together a series of numerically sequential memories for repetitive playback. Loops may contain any number of memories.

Loops are played back on the A/B fader and are assigned to controllers as chasers. Part Qs and Event assignments in Loops are supported only when the Loop is played back on the A/B crossfader.

Loop information is displayed in the memory sheet, the playback area of the stage exam, and the x-fade exam display

There are 5 types of Loops:

Type of Loop	What it does
Automatic continuous Loop	The Loop runs an infinite number of times. The crossfades from memory to memory are automatic.
Manual continuous Loop	The Loop runs an infinite number of times, but each memory waits for a go command.
Manual Loop	A manual Loop advances from memory to memory by a manual Go command for each memory within the Loop.
Finite Loop	The Loop is programmed to run a specified number of times.
Auto follow Loop	A second Loop is Linked to the preceding finite Loop.
Follow-on cue	A single Loop between memories creates a follow on cue.

Delay time is useful with Loops. Assigning a delay time to a memory in a Loop determines how long the previous memory remains on-stage before crossfading to the next memory in the Loop.

To select a range of memories:
Press **[MEMORY] [#] [→] [#]**.

Programming an automatic continuous Loop

An automatic continuous Loop runs continuously on its playback fader assignment until some action is taken (see Chapter 10 The A/B Crossfader and Chapter 11 Controllers)

Example: Program a Loop from memory 12 to 16

Keypresses	**Results/Comments**
1. Press **[MEMORY]** and enter 12 on the keypad.	The Loop begins with the crossfade to memory 12.
2. Press **[→]**	
3. Select the last memory in the Loop; in this example – 16.	
4. Press **[LOOP]**	The memory range and *Loop* appear in the command line.
5. Press **[STORE]**	The Memory List displays a dash (-), denoting an automatic continuous Loop.

➢Note

If the memory already has a Loop assignment, the warning message *Loop Exists* appears. To override, simply press **[STORE]** once more.

Programming a manual continuous Loop

A manual continuous Loop completes one entire Loop and then stops. The next Go command crossfades to the first memory of the Loop..

Keypresses	**Results/Comments**
1. Select a range of memories	
2. Press **[LOOP]**	
3. Press **[LOOP]**	<*> appears next to *Loop* In the command line denoting a manual continuous Loop.
4. Press **[STORE]**	Store the assignment. An asterisk (*) is displayed in the Memory List next to the initial memory of the Loop.

Programming a manual Loop

A manual Loop advances from memory to memory by a manual Go command for each memory within the Loop. When the last memory of Loop is reached, the next Go command crossfades to the first memory of the Loop. This is analogous to stepping through a sequence of memories assigned to a chaser (See Chapter 11 – Controllers).

Keypresses	Results/Comments
1. Select a range of memories	
2. Press **[LOOP]**	
3. Press **[→]**	*1* appears next to *Loop* In the command line denoting a manual Loop.
4. Press **[STORE]**	Store the assignment. An asterisk (*) is displayed in the Memory List next to the initial memory of the Loop.

Programming a finite Loop

Finite Loops run the allotted number of times and then stop. When a finite Loop running on A/B completes its run, the next Go command crossfades to the memory following the Loop sequence. When the finite Loop is assigned as a chaser, it runs the allotted number of times and stops. The next Go command for the chaser activates the Loop again.

Up to 250 Loops are allowed.

Example: Assign a Loop to run 5 times and then stop.

Keypresses	Results/Comments
1. Select a range of memories	
2. Press **[LOOP]**	
3. Enter 5 on the keypad.	Specify that the selected range of memories Loops 5 times before stopping.
4. Press **[STORE]**	The number of Loops is displayed in the Memory List next to the initial memory of the Loop.

Programming an autofollow Loop

An autofollow Loop is a Loop Linked to a preceding finite Loop. It begins its Loop when the finite Loop is complete. The second Loop in the autofollow Loop sequence can be any type of Loop.

Example: After memories 1 through 5 complete their final Loop, memories 6 through 10 will begin their Loop without any action on part of the board operator.

Keypresses	**Results/Comments**
1. Program a finite Loop for memories 1 → 5.	
2. Program any type Loop for memories 6 → 10.	
3. Select memory 1	
4. Press **[LOOP]**	
5. Press **[+]**	The command line reads *Auto Loop*.
6. Press **[STORE]**	The warning message *Loop Exists* is displayed
7. Press **[STORE]**	The icon >> >> is added to the Loop information in the memory list.

Programming a follow-on cue

Utilize the Loop function to create a follow on cue. The Loop assignment automatically fades to the next memory in sequence.

Example: Program memory 12 as a follow-on to memory 11. Pressing **[GO]** crossfades to memory 11. Upon completion of the fade, the crossfade to memory 12 begins automatically. When memory 12 completes its fade the Loop sequence is complete.

Keypresses	**Results/Comments**
1. Select memory 11.	
2. Press **[LOOP]**	
3. Press **[STORE]**	*1* is displayed in the Memory List as the Loop assignment memory for memory 11.

Erasing Loop assignments

Keypresses	**Results/Comments**
1. Select the first memory of the Loop.	
2. Press **[LOOP]**	
3. Press **[ERASE]**	The message *Memory # Stored* is displayed. If the Loop is assigned, the message *Memory On Board* is displayed; press **[ERASE]** again to confirm the command.

Erasing an autofollow Loop assignment

This cancels only the autofollow Loop, leaving the basic Loop assignment intact.

Keypresses	Results/Comments
1. Select the first memory of the autofollow Loop assignment.	
2. Press **[LOOP]**	
3. Press **[+]**	*Loop Auto follow* is displayed in the command line.
4. Press **[ERASE]**	Both memory ranges retain their Loop assignments. The Link between them is canceled.

Link

This function allows Linkage of two or more memories to playback sequentially regardless of numerical sequence. Linked sequences are supported on the A/B crossfader.

An example of the use of Links is when a range of memories, used as a chaser is assigned to run on a controller. You do not want this range of memories functioning as a chaser to sequence on the A/B crossfader. Link the memory immediately preceding the chaser sequence and the memory immediately following the chaser sequence. Example: memory 20 is Linked to memory 31. Memory 31 follows memory 20 skipping any memories recorded between these two memories. Memory 32 continues the sequence after memory 31.

When a Link and a Loop are assigned to the same memory, the Link overrides the Loop.

Programming a Link between two memories

Example: Link memories 20 and 30.

Keypresses	Results/Comments
1. Select memory 20	
2. Press **[LINK]**	
3. Select memory 30.	
4. Press **[STORE]**	If the memory already has a Loop assignment, the warning message *Loop Exists* appears. To override, simply press **[STORE]** once more. In Memory List, 30 is in the Link column for memory 20.

Programming a Link among a group of memories

Example: Link memories 1, 10, 3, and 12.

Keypresses	Results/Comments
1. Select memory 1.	
2. Select memory 10	The Memory List is displayed. Selected memories appear on a red field.
3. Select memory 3	
4. Select memory 12	
5. Press **[LINK]**	Creates a Link from mem 1 to mem 10 to mem 3 to mem 12.
6. Press **[STORE]**	The Links are displayed in the Memory List.

Erasing a Link assignment

Keypresses	Results/Comments
1. Select memory with the Link assignment.	
2. Press **[LINK]**	Select the Link function.
3. Press **[ERASE]**	The Link assignment is canceled. *Memory # Stored* is displayed.

Viewing Links

Keypresses	Results/Comments
1. Press **[LINK]**	
2. Press **[EXAM]**	The Memory List is displayed exactly as it will run on the playback.

CHAPTER 8
MODIFYING MEMORIES

This chapter includes:

Basic memory modification

Proportional modification

Using STORE STORE

- STORE STORE modes
- Storing to the first active playback device
- Storing to the all playback devices
- Storing to selected playback devices

Memory Range modification

- Modifying a channel over a range of memories
- Modifying a scroller assignment
- Adding a new channel to a range of memories
- Releasing channels from a range of memories

Releasing channels and scrollers

Basic Memory Modification

Basic memory modification is calling a stored memory the memory to the editor, modifying, and storing the memory again.

Channels under memory modification are displayed in dark blue. The selected memory number remains in the command line.

This function may be executed in live or blind modes.

Keypresses	Results/Comments
1. Select the memory for modification.	
2. Press **[CHANNEL]**	The memory is live on stage unless you are working in Blind editing. The channels contained in the selected memory are displayed in dark blue.
3. Select channels and modify	
4. Press **[STORE]**	If the modified memory is not present in any other location on the board, such as A/B or a controller, the message: *Memory # Stored* is displayed. To clear the editor press **[RESET]**.

If the memory that you are attempting to store is assigned somewhere on the board, the message: *Memory On Board* is displayed.

Press **[STORE]** again to overwrite the memory. The editor clears when the memory is stored.

If you have converted a memory to an editor group (see Chapter 6 Programming Memories) you can store to the same memory number.

Example: Modify memory 1.

Keypresses	Results/Comments
1. Select memory 1.	
2. Press **[ENTER]**	Memory 1 is converted to a group in the editor. *E1* is displayed instead *L#* (Last memory stored).
3. Modify the group.	
4. Press **[=]**	*Memory* is added to the command line.
5. Press **[ENTER]**	*1* appears in the command line, referencing *E*.
6. Press **[STORE]**	The message *Memory 1 Stored* is displayed.

Proportional Modification

You can capture a memory on the wheel and fade its channels proportionally against the stage output. .

The wheel value range is from –100 to +200.

The memory level is reached when the wheel value is +100. The original stage output is reached when the wheel value is 0. There is a pause in the wheel function at the 0 and 100 value. This pause notifies you that the stage output is at its original value or the channels in the selected memory are at their memory value.

The keypress sequence for this function is:

[MEMORY #] [wheel]

Example:

active output channel intensity	1 50	2 10	3 20	4 FL	
Memory	1 20	2 --	3 40	4 --	5 FL
[MEMORY #] [wheel] wheel to –30	1 20	2 10	3 --	4 FL	5 --

Table 1 wheel value less than 0

active output channel intensity	1 50	2 10	3 20	4 FL	
memory	1 20	2 --	3 40	4 --	5 FL
[MEMORY #] [wheel] wheel to +50	1 35	2 10	3 30	4 FL	5 50

Table 2 wheel value between 0 and +100

Active output Channel Intensity	1 50	2 10	3 20	4 FL	
Memory	1 20	2 --	3 40	4 --	5 FL
[MEMORY #] [wheel] wheel to +150	1 70	2 10	3 90	4 FL	5 FL

Table 3 wheel value greater than 100

Other sequences are:

Sequence	What happens
[MEMORY #] [wheel] [FULL]	The wheel value is bumped to +100.
[MEMORY #] [wheel] [ON]	The wheel value is bumped to +50 (default) or the value set for ON in the System Parameters menu.
[MEMORY #] [wheel] [ZERO]	The wheel value is bumped to 0.

Using STORE STORE

To work through this section see Chapter 10 the A/B Crossfader. You need to know how to assign memories to A/B.

STORE STORE modifies memory and group assignments on the active playback devices, giving Photon the ability to quickly modify an entire lighting picture even if the look is composed of different playback assignments. (See Chapters 10 and 11 for assigning memories and groups to playback devices.)

The most prevalent use of the STORE STORE method is modifying memories on the A/B crossfader after the basic memories have been recorded. STORE STORE also allows you to update all active controller output.

When there are channels in the editor pressing **[STORE]** opens the Store Store window. This window shows where, to which playback devices, the information in the editor will be stored. The affected playback devices are displayed in red.

STORE STORE modes

STORE STORE has two different modes. The toggle *Store to first active fader,* in the System Parameters menu, determines the mode.

1. *Store to the first active fader: Yes*
   The editor contents are stored to the first active playback fader or controller. The system first looks at the A/B crossfader and then controllers beginning at controller 1.
2. *Store to the first active fader: No*
   The store is executed wherever relevant.
   Example: Channel 2 is present in the active memory on A/B and also active in controller assignments for controllers 1 and 8. Channel 2 is present in the editor at 80%. The editor value for channel 2 is stored in A/B and controllers 1 and 8 when the store command is confirmed.

➢Note

When using **[STORE] [STORE]**, new channels (channels not assigned to any of the output sources) are stored to the first active playback device only.

Storing to the first active playback device

The example below modifies the memory active on crossfader A. The Store Store mode is, *Store to the first active fader* toggled to Yes.

Keypresses	Results/Comments
1. Assign a memory or a group to A: Press **[MEMORY] [#] [A]** To assign a group: select channels and assign intensity, then press **[A]**	The memory number is displayed in the LED display for fader A. *grp* is displayed for a group assignment.
2. Select channels for modification.	
3. Assign intensity and parameter values.	
4. Press **[STORE]**	The Store Store window opens. The assignment on fader A is displayed on a blue field. The message *Are you sure?* is displayed.
5. Press **[STORE]**	The window closes and the editor is stored, in this example, to the assignment on A.

Storing to the all playback devices

The example below modifies the memory active on crossfader A, on controller 6, and controller 10. Each assignment includes channel 100. The Store Store mode, *Store to the first active fader* is toggled to No.

Keypresses	Results/Comments
1. Assign a memory to A: Press **[MEMORY] [#] [A]** Assign memories to controllers: Press **[MEMORY] [#] [ASSIGN] [SK 6] [MEMORY] [#] [SK10]**	The memory number is displayed in the LED display for fader A. The LEDs for controllers 6 and 10 is red and the assignment is appears on the controller display.
2. Make sure that the faders for A, controller 6, and controller 10 are at 100%.	
3. Select channel 100 and assign intensity.	
4. Press **[STORE]**	The Store Store window opens, showing the assignments on A, controller 6, and controller 10 on a red field.
5. Press **[STORE]**	The window closes and the editor is stored to all assignments displayed in red.

Storing to selected playback devices

You can select the playback device where you want to store the editor. The Store Store toggle does not influence this function.

Keypresses	**Results/Comments**
1. Select channels and assign intensity values.	
2. Press **[STORE]**	The Store Store window opens showing all of the active assignments on the playback devices.
3. Select where you want the store to occur To store to the crossfader press: **[ASSIGN] [A]** or **[ASSIGN] [B]**. To store to a controller press **[ASSIGN]** and the controller **[SK]**.	The playback device, displayed in the store window, turns brown when pressed. This means that the data in the editor has been stored to the assignment on selected playback device. More than 1 playback device can be selected.
4. Press **[CLEAR]** to return the editor to idle.	

➢Note

To store to more than 1 assignment, you must press **[ASSIGN]** between each selection.

Using Memory Range Modification

Use this function to modify channel intensity and scroller assignments over a range of memories or in a group of memories.

The examples below modify single channels, however a range of channels may also be selected.

You may want to display the Selected Channel exam (see Chapter 5 Selecting and Editing Channels and Scrollers) when working with this function.

Modifying a channel over a range of memories

Keypresses	Results/Comments
1. Select a range or a group of memories.	
2. Select the channel/s for modification.	
3. Modify intensity using the dimmer wheel for proportional modification or **[@]** for absolute modification.	
4. Press **[STORE]**	If there are a lot of memories to store, a *Wait* message may be displayed. When the modification is complete, the message *Memory # → # Stored* is displayed.

Adding a new channel to a range of memories

Keypresses	Results/Comments
1. Select a range of memories.	
2. Press **[+]**	*New* appears in the command line.
3. Select the channel number and assign intensity using the wheel or the keypad.	A range of channels may be selected.
4. Press **[STORE]**	If there are a lot of memories to store, a *Wait* message may be displayed. When the modification is complete, the message *Memory # → # Stored* is displayed.

Releasing channels from a range of memories

Keypresses	Results/Comments
1. Select a range of memories.	
2. Select the channel/s.	
3. Press **[ZERO]**	
4. Press **[STORE]**	The selected channel/s are released from the selected memories.

Releasing scrollers from a range of memories

Keypresses	Results/Comments
1. Select a range of memories.	
2. Select the scroller channel/s	
3. Press **[FRAME]**	
4. Press **[ZERO]**	
5. Press **[STORE]**	The scroller values are released from the selected memories. When examining the channel no value appears in the scroller column.

Releasing Channels & Scrollers

This function can be used in Live or Blind mode.

Releasing channels

Use the following sequence to release channels and scrollers from 1 selected memory.

Keypresses

1. Select a memory.
2. Select the channel you want to release.
3. Press **[ZERO]**, use the dimmer wheel and wheel down to 0%, or press **[RELEASE]**
4. Press **[STORE]**

Releasing scrollers

Scrollers can be released from memories. After releasing a scroller from a memory, frame values will be determined by the tracking. Releasing a scroller must be done via memory modification.

Keypresses	Results/Comments
1. Select the memory for modification.	
2. Select the scroller channel.	Channels that have both intensity and frame assignments appear in dark blue. Channels that have only scroller frame assignments appear in white. The frame values appear in green.
3. Press **[FRAME]**	You now have access to the scroller.
4. Press **[ERASE]** or **[RELEASE]**	The frame is released from the memory.
5. Press **[STORE]**	

CHAPTER 9
DATA STORAGE, RETRIEVAL, & PRINTING

This chapter includes:

Recording Show Files

Loading a Show File

- Loading parts of the show file
- Warning difference

Deleting Show Files

Printing

- Printing options
- Using Print Screen
- Programming a print command Macro

Recording Show Files

Shows are recorded in the Record menu - menu 5.

The entire contents of the system memory, including memories, channel patch, scroller assignments, Macros, etc. are recorded onto a 1.44 Mb floppy diskette. Each show file must be given a number. The play number is usually written in this format: ###.#. A text label may be attached to the show file. A date and time stamp is automatically appended to the show file.

Frequently recording your show as you work is a good habit to adopt. This insures against losing your data in case of a system error or any other drastic accident. Recording to a diskette takes only a few minutes and can save hours of work.

If you attempt to record and there is no diskette in the disk drive or if the diskette is damaged the system displays the message *Bad Diskette*.

If the diskette is write protected the message reads *Diskette Protected*. Correct the error and continue the recording procedure.

The print option (**F2**) prints the list of files on the diskette contents.

Keypresses	**Results/Comments**
1. Insert a formatted diskette in the disk drive.	
2. Go to the Record menu.	The contents of the diskette are displayed. If there is no diskette in the disk drive or if the diskette is damaged the system displays the message *Bad Diskette*.
3. Press **F1 Play/Act**	The prompt *Enter Play # In Format xxx.x* is displayed.
4. Enter the show file number on the numeric keypad.	The show file can be up to 3 whole digits and a decimal number. Examples: 333.1, 28.2, 1.5, 0.3. A time and date stamp is automatically included.
5. Press **F2 Text** and type text on the keyboard.	This is optional.
6. Press **F1 Store**	The message *Are you sure?* is displayed.
7. Press **F1 Yes**	A progress bar is displayed while the disk drive is active. When the recording is complete, the message *Record Complete* is generated.

If you are recording over a play number already in use the message: *"Play Exists"* is displayed.

To overwrite the data recorded on that play number press:

F1 YES again to confirm the command.

Loading show files

The Load menu, menu 2, manages loading show files stored on the floppy disk.

Entering this function automatically activates the disk drive, which reads and displays the files stored on the diskette.

Keypresses	**Results/Comments**
1. Insert diskette with the show files to the disk drive.	
2. Go to menu 2.	The diskette contents are displayed.
3. Press **F1 Play/Act #**	The console prompts for a show file number.
4. Enter the desired show file on the numeric keypad.	If you have made an error in entering the play number, the message "*Bad Play Number*" appears. Start again and enter the correct play number.
5. Press **F1 All diskette**	The message *Are you sure?* is displayed.
6. Press **F1 Yes**	A *Wait* message is displayed. After load is complete the Memory List is displayed. If the show file does not contain memories the message reads *No Memories Loaded.*

➢Note

If there are memories on board during load, the memory numbers in the file that are identical to the memories already on board do not load.

Load options

You may choose to load only portions of the show file. This is a very versatile function, saving much editing time by allowing different shows to share a common patch or mix output, transferring libraries and macros from show to show, etc.

The different options are:

F1 All	All of the data contained in the show file is loaded.
F2 Patch Only	Load the patch tables only. Patch tables include Channel Patch (including the DMX Input Patch) and Scroller Patch.
F5 Macro Only	Load only the Macros.

➢Note

Shows that were recorded on Photon can be loaded to Spark and Spark 4D. Only memories are loaded. Snaps, Macros, and Events (Auto Assignments) are ignored.

Warning Difference

If the show file was recorded under a system configuration different than the current one, the **WARNING DIFFERENCE** window is displayed when you attempt to load the show.

The **WARNING DIFFERENCE** window displays the current system and the show file. A list of all the tables (Scroller Table, Channel Patch, and Input Patch) is also displayed. The Patch tables are affected when loading under Warning Difference. You can choose how to handle loading the Patch tables, see below.

As a rule of thumb, if the item is larger in the show data than it is in the current system configuration, then ***Clear*** and ***Don't Load*** are the choices. If the item is larger in the current system configuration than the on the disk then ***Merge*** and ***Don't Load*** are the options.

Keypresses	**Results/Comments**
1. Use **F2** ↑↓ to select options.	
2. Use **F3** to toggle between the choices **Merge/Clear** and **Don't Load**.	
3. Press **F1 LOAD**	The load operation is executed.

Don't Load None of the information contained in the show file pertaining to the specific patch table is loaded. Example: The configuration in the show files is 512 channels. The current system configuration is 420 channels. No information from the Channel Patch is loaded. The default Channel Patch will be present after the load is complete.

Clear When the configuration recorded in the show file is larger than the Photon's current configuration, the extraneous data is cleared. Example: the configuration in the show files is 512 channels. The current system configuration is 420 channels. All channels and related soft patch greater than 420 channels is not loaded.

Merge When the configuration recorded in the show file is smaller than the Photon's current configuration, the data contained in the show file is merged into the current configuration. Example: the configuration in the show files is 376 channels. The current system configuration is 420 channels. All channels and related soft patch up to channel 420 is loaded.

➢Note

It is always expedient to load The System Configuration (see appendix A Service Tools - Disk Operations) before loading show files and avoid loading under WARNING DIFFERENCE, as differences in the toggles in Special Functions and the entries in Special Numbers also influence the console's function.

Deleting Show Files

Delete Play/Act is menu number 14. Use this menu to delete show files recorded on floppy disk.

Keypresses	**Results/Comments**
1. Make sure the diskette is in the disk /drive.	
2. Go to the Delete Play/Act menu	
3. Press **F1 Play/Act**	The prompt asks for the show file number.
4. Enter the file number on the keypad.	
5. Press **F1 Delete**	The message *Are You Sure?* is displayed.
6. Press **F1 Yes**.	The show file is deleted.

Printing

This is menu 7. It is suggested to print for documentation purposes and a printout is a lifesaver if your diskette is damaged or lost.

Printing options

The Printer menu is menu number 7. It is suggested to print for documentation purposes and a printout is a lifesaver if your disk is damaged.

Options	What it prints
F1 Memory sheet	This is the memory list (cue sheet) displayed as Memory Exam. The memories are listed in numerical order, with fade times, text, Part assignments, Loops, Links, and Events.
F2 Memory/s contents	Single memories, a range of memories, or all the memories may be printed. The printout contains the memory number, all spots and parameters assignments, all channels and intensity assignments, scroller assignments, fade times, part times, and text.
F3 Macro	Print all of the macros.
F4 Free Channels	Channels that are not used in any of the memories.
F5 Channel Patch	Print the Channel patch table.
F6 F1 Tracking Sheet	Print the tracking of channel assignments in memories – the display shown when requesting **[CHANNEL] [MEMORY] [EXAM]**.
F6 F2 Effect/s	Print the list of Effects.

Using Print Screen

Pressing **Print Screen** on your text keyboard prints what is currently displayed. Since the text keyboard can also be used for editing, it is provided with a lock. To use the Print Screen function on you text keyboard, you must unlock it by pressing **ALT A**.

Programming a print command Macro

You can program a macro that works as Print Screen.

Keypresses

1. Go to the Macro menu (menu 9).
2. Press **F1 Create**.
3. Select the macro number.
4. Press **F6** and **F4 Print**
5. Press **F1 Store Macro**.

For more information on Macros see Chapter 15 – Macros.

CHAPTER 10
THE CROSSFADER

This chapter includes:

Overview

Displays

Assigning Memories to the Crossfader

Sequencing Memories

Assigning the Editor to the Crossfader

Freeing assignments

Playback

- Automatic Go
- Exiting a Loop

Modifying the Fade Rate

- Moving the crossfader manually
- Using the Wheel

Overview

The A/B crossfader is a split crossfader, which accepts memory assignments, loop assignments, and editor group assignments..

A and B each have an LED display that shows the current and incoming memories.

When both A and B are at the top end stop, A is the active fader at 100%. When both A and B are at the bottom end stop, B is the active fader at 100%. When A and B are not at the end stops they both influence the output.

Memories are played back in numerical sequence. When **[SEQ]** is enabled (LED on) memories are played back in sequential order. The crossfader supports links between non-sequential memories.

Crossfades can be executed manually, by moving the faders, or automatically. The crossfade rate derives from the fade time assignments in the memories. The crossfade rate can be manually overridden with the Rate wheel.

The automatic crossfade commands include Go, GOTO (multifade), Backfade, and Hold. The crossfaders support Auto Event assignments (see Chapter 12 Event).

Displays

Output from the A/B crossfader is displayed on Stage display in blue.

Information pertaining to the A/B crossfader appears in the Playback Display. The Playback display is part of display formats 1, 3, 5, and 7. The information includes:

- The current memory
- The next memory
- Loop information
- Link information
- Fade time assignments
- Fade Rate status
- Auto Event status
- Dynamic display of fade progress.

An expanded crossfader display is available on the X-Fade Exam (display formats 2 and 3). The X-fade Exam format is usually used during playback. The display includes:

- A bar graph that tracks the fade’s progress
- A list of the next memories
- Previous memory
- Loop information
- Fade Rate status
- Controller/Chaser status.

Assigning to the Crossfaders

The A/B crossfader accepts assignments of memories and editor groups.

When you assign a memory **[SEQ]** and the Auto Assign function are automatically enabled; the LED for **[SEQ]** is on and the Auto Assign Led is on. When the assignment is an editor group **[SEQ]** and Auto Assign are not functional. **[SEQ]** can be manually disabled and enabled.

When you assign a memory or an editor group to the active fader (the fader that is at 100%), the memory becomes active immediately. It is recommended to assign the memory to the fader that is not active to avoid bumping in a memory as this can cause lamp burnout.

Assigning memories

Example: Assign memory 1 to A. B is the active fader.

Keypresses	Results/Comments
1. Set both faders at their bottom end stop (B is active).	
2. Select memory 1.	
3. Press **[A]**	*1* appears on A's LED display.
4. Press **[GO]** or move the faders manually.	A crossfade from blackout to memory 1 occurs. **[SEQ]** and **[AUTO]** function are automatically enabled; the LED for **[SEQ]** is on and the Auto Assign Led is on.

You can also assign memories by using **[GO TO]**. Depending on the key sequence used this method fades the memory in 1 second (default fade time), in the fade time recorded for the selected memory, or in selected fade time.

Fade to the assignment in 1 second

Keypresses	Results/Comments
1. Select a memory.	
2. Press **[GO TO]**	The selected memory is faded to the active fader in 1 second fade. **[SEQ]** and **[AUTO]** function are automatically enabled; the LED for **[SEQ]** is on and the Auto Assign Led is on.

Fade to the assignment in recorded fade time

Keypresses	Results/Comments
1. Select a memory.	
2. Press **[TIME]**	
3. Press **[GO TO]**	The selected memory is faded to the active fader. The fade rate is according to the time assignments in the selected memory. **[SEQ]** and **[AUTO]** function are automatically enabled; the LED for **[SEQ]** is on and the Auto Assign Led is on.

Fade to the assignment in selected fade time

Example: Assign memory 1 to the free fader in an 8 second fade.

Keypresses	Results/Comments
1. Select memory 1.	
2. Press **[TIME]**	
3. Press **[8]** on the numeric keypad.	
4. Press **[GO TO]**	The selected memory is faded to the active fader. The fade rate is according to the time selected. **[SEQ]** and **[AUTO]** function are automatically enabled; the LED for **[SEQ]** is on and the Auto Assign Led is on.

Assigning editor groups

You can assign the channels in the editor to A or B. The LED display shows *grp* when the assignment is the editor group. All the channels in the editor are assigned.

Only manual fading can be used with *Grp* assignments.

Keypresses	Results/Comments
1. Channels and assign intensity or frames.	
2. Press **[A]** or **[B]**	*Grp* is displayed in the LED window for A or B.

Freeing assignments

When an assignment is freed, the channels output in the assignment blacks out. If they are active in the editor or on a controller their output bumps to the level determined in that assignment.

Example: Free the assignment from A.

Keypresses	Results/Comments
1. Press **[FREE]**	The message *Assign Key Expected* is displayed.
2. Press **[A]**	The assignment is released. The channels released from A blackout or if they are active in the editor or on a controller output at the level of that assignment. The console is still in Free mode; *Free* is still displayed in the command line.
3. Press **[B]**	The console is still in Free mode; *Free* is still displayed in the command line.
4. Press **[CLEAR]** to exit Free mode	

➢**Note**

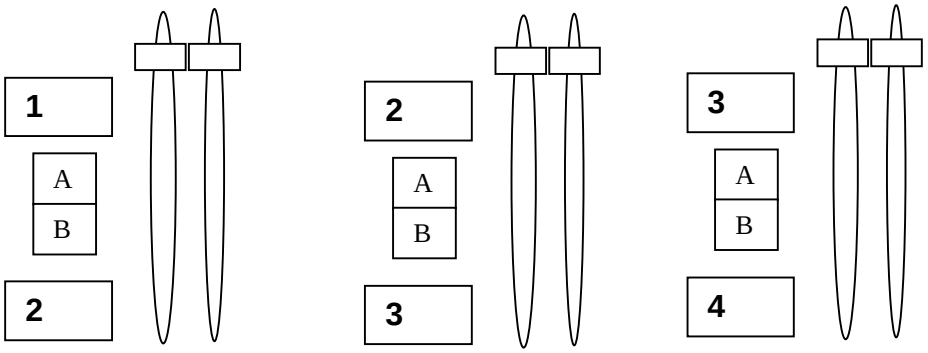
[SEQ] is disabled when the memory assignment on either A or B is freed.

[SEQ] and **[AUTO]** are disabled when the assignments from both A and B are freed.

Sequencing Memories

The **[SEQ]** key must be enabled (LED on) for memories to sequence on the crossfaders. Memories sequence numerically or according to Link assignments.

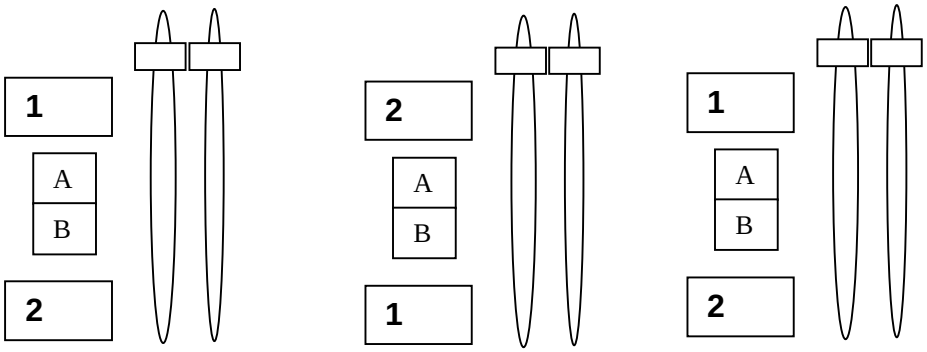
[SEQ] enabled: Original assignment After 1st crossfade After 2nd crossfade



Sometimes you might want to disable the memory sequencing. The sequencing function can be manually disabled by pressing **[SEQ]**. When disabled the LED is off. All crossfades now take place between the assignments on A and B.

Example: Memory 1 is assigned to A and memory 2 is assigned to B. You want memory 1 to remain assigned opposite memory 2 even after crossfading to memory 2. Disable **[SEQ]**

[SEQ] disabled: Original assignment After 1st crossfade After 2nd crossfade



The Playback Keys

The keys used for playback control are grouped around the crossfaders.

Key	Function or Command
[A]	Press to assign a memory or an editor group.
[B]	Press to assign a memory or an editor group.
[GO]	Pressing **[GO]** initiates a crossfade to the incoming assignment. The duration and look of the fade depends on the fade times of the incoming memory. While a crossfade is in progress, the LED is on.
[GO TO]	Pressing **[GOTO]**, in the middle of a crossfade, begins an immediate fade to the next memory. Example: if there is a crossfade in progress from memory 1 to memory 2, pressing **[GOTO]** begins a crossfade to memory 3. This is called a multifade. During a multifade, *nult* is displayed in the LED window. You can press this key more than once in succession.
[BACK]	You can press this key more than once in succession.
[HOLD]	Pressing **[HOLD]** halts a crossfade at any point in its progress. When the crossfade is on Hold, the LED of the **[GO]** key flashes.
[SEQ]	When enable (LED on) memories assigned to the crossfader automatically sequence in numerical order. When disabled (LED off) manual and automatic crossfaders are between the current assignments and the memories do not sequence.
[AUTO]	When active (Auto Assign LED on) Events assigned to memories operate as the memory sequences on the A/B crossfader. When not active (Auto Assign LED off) Events assigned to memories do not operate.

Automatic Go

Pressing **[GO]** initiates a crossfade between the currently active assignment and the assignment “on board” (incoming assignment):

Incoming assignment	Fade time
A memory	Assigned fade times
Grp	Default Fade Time in the System Parameters menu
No incoming assignment	Default Fade Time in the System Parameters menu

Important! When the faders are off their end pressing **[GO]** does not work. The error message *Go has no time* or *Go direction?* Is displayed. To perform an automatic fade, you must first manually return the faders to the end stop.

Exiting a continuous automatic or manual Loop

When you are running a continuous automatic (infinite) loop or a continuous manual loop on A/B you must manually exit the loop.

Keypresses	**Results/Comments**
1. Press **[MEMORY]**	
2. Press **[GO TO]**	An immediate crossfade to the memory following the loop is initiated. The crossfade occurs in the recorded memory time.

➢Tip

Make a Macro for this key sequence to provide a single press exit from Loops.

Modifying the Fade Rate

You can manually take over the fade rate during a fade with the crossfaders and the rate wheel or preset a fade rate using the rate wheel.

The default fade rate is the fade times recorded in the incoming assignment. The default is displayed as *MEM* on the playback display.

Moving the crossfaders manually

When a fade is in progress you can change the fade rate by manually "capturing" the fade.

Keypresses	**Results/Comments**
1. Press **[GO]**	
2. Move the faders until you overtake the fade.	When you have captured the fade the LED on **[GO]** is extinguished.
3. Continue moving the faders until the fade is complete.	

Using the Wheel

You can use the wheel to modify the fade time. Using the wheel allows you to override the rate of a fade in progress or preset a modified rate time. Modified rate times remain in force for all crossfades as long as the **[RATE A/B]** key is enabled.

The wheel's range is from 'cut' to 'hold'.

As long as the LED of the key is on, the wheel accesses the fade rate.

Keypresses	**Results/Comments**
1. Press **[A/B RATE]**	The key's LED is on. The fade rate in the Playback display is shown on a blue field.
2. Use the wheel to modify the crossfade rate.	The modified rate fade is appears in percentage on the Playback display.

Returning to MEM time

Keypresses	Results/Comments
1. Press **[A/B RATE]**	The key's LED goes off. The fade rate is displayed on a gray background.
2. Press on **[GO]** or **[BACK]**	The crossfade is executed in memory time. *MEM* is displayed on the Playback display.

CHAPTER 11
CONTROLLERS & CHASERS

This chapter includes:

Overview

- Displays
- Assign mode
- Controller LEDs

Assigning memories

- Assigning masks

Assigning Editor Groups

- Assigning channels
- Assigning scrollers
- Adding text to a grp assignment

Examining a Controller Assignment

Freeing Assignments

- Freeing multiple controller assignments
- Freeing all controller assignments

Using ‘Go Controller’

- Fade times with ‘Go Controller’

Chasers

- Chaser displays
- Assigning chasers to controllers
- Playing back chasers
- Modifying the chaser rate

Assigning Controllers as Submasters

- Assigning controllers as inhibit submasters

Sound-to-Light

- Turning on sound-to-light
- Turning off Sound-to-Light
- Sound-to-Light display
- Controller response

Overview

Photon has 20 Controllers. Each controller has a colored LED and a Soft Key/Bump Button.

In Assign mode, controllers accept group, memory, and up to 10 chaser assignments. The Soft Key/Bump Button functions as an Assign key.

Controllers can be assigned as inhibitive submasters.

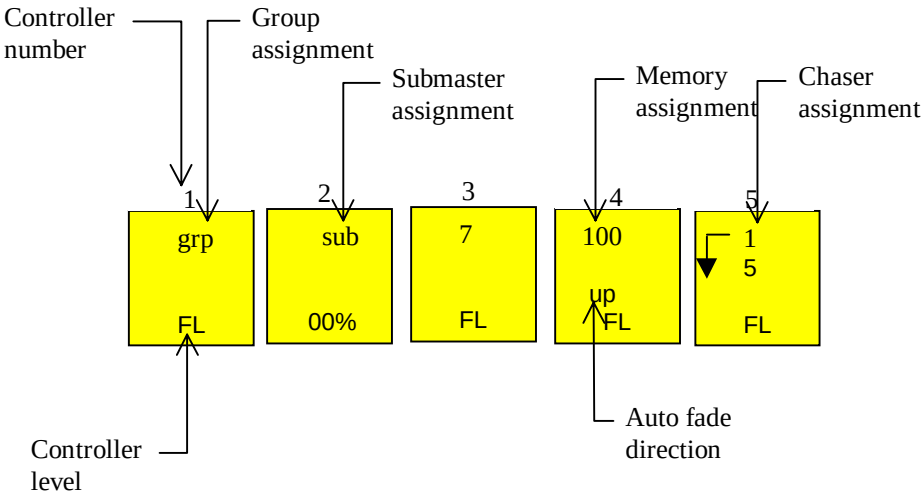
Group and memory assignments can be faded manually or given an automatic Go command. Chasers playback in hard run mode or soft run mode.

Output from the controllers appears in orange on the Stage display.

Displays

The Playback display, in display formats 1 and 3 has an area for Controller display.

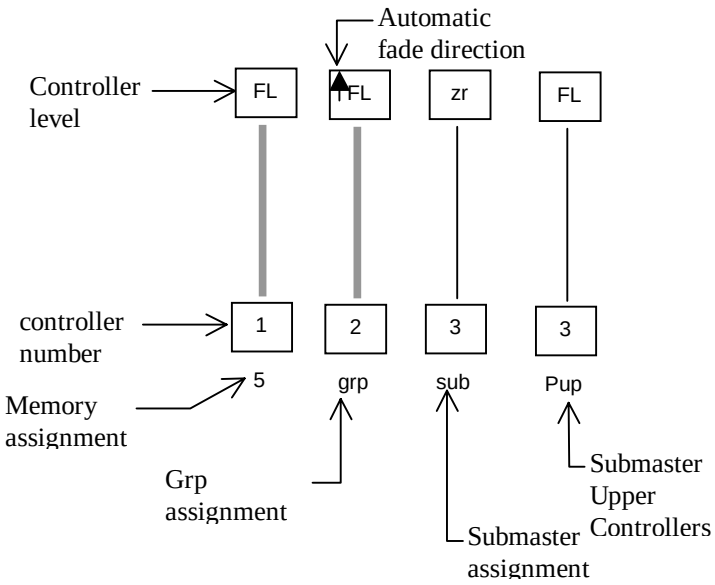
When the default mode is Assign, the controller display may look like this:



Information pertaining to the Controllers is displayed on the monitor.

Type of assignments	**Contents**	**on monitor**
Group	One or more channels	grp
Memory	Single memory assignments	The memory number
Submaster	One or more channels	sub Text when submastering controllers, DMX input, or A/B
Chasers	A range of memories Chaser run mode	Current and incoming memory Playback mode Run status

The XFade Exam, display format 3, also contains a Controller display. It looks like this:



Color code for the XFade Exam controller display:

What	**Display color**
Controllers 1 – 5 and 11 – 15	Blue
Controllers 6 – 10 and 16 – 20	White
Assignments to odd number controllers	Red
Assignments to odd number controllers	White
Automatic fade of controller assignment	Red on a gray field with an arrow indicating direction.
Automatic fade on Hold	Gray on a red field with an arrow indicating direction.

Assign mode

A double hit on **[ASSIGN]** changes the Soft Keys default function to Assignment mode. Assign mode allows you to assign groups of channels, memories, or masks to controllers. The discussion of the Assign mode assumes that the Soft Key mode is Assign either as the default mode or temporary mode.

Assigning ranges of memories and channels to sequential controllers bumps out current assignments.

An asterisk (*) on the SK Mode LED display indicates temporary mode.

Controller LEDs

The color coded LEDs differentiate between grp, memory, submaster assignments, and chaser assignments.

Assignment	LED
Grp	Green
Memory	Green
Sub	Green
Chaser on Hold	Blinking Red
Chaser Running	Red
Chaser in Step mode	Orange

Assigning Memories

Memory assignments can be faded manually or automatically.

Example: Assign memory 4 to controller .1

Keypresses	Results/Comments
1. Select memory 4.	
2. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
3. Press controller 1's SK.	Controller 1's LED is green. The memory assignment appears on the controller display.

Assigning a range of memories to sequential controllers

Example*:* Assign memories 30 - 35 to controllers 6 - 11.

Keypresses	**Results/Comments**
1. Select memories 30 → 35.	
2. Press **[ASSIGN**	The message *Assign Key Expected* is displayed.
3. Press controller 6's SK.	Memory 30 is assigned to controller 6, memory 31 to controller 7, etc.

Assigning an unspecified range of memories to sequential controllers

Example: Assign memory 17 to controller 7, memory 18 to controller 8, memory 19 to controller 9, until all the available controllers have been assigned.

Keypresses	**Results/Comments**
1. Select Memory 17 as the starting memory.	
2. Press **[→]**	It is unnecessary to select the last memory in the range, as this cannot exceed the number of controllers.
3. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
4. Press the controller 7's SK.	Memory 17 is assigned to controller 7, memory 18 to controller 8, and so on finishing with memory 30 assigned to controller 20.

Assigning Masks

Use Mask to assign the channels in a memory as a group assignment.

Example: Assign the channels in memory 1 as a group assignment to controller 7.

Keypresses	**Results/Comments**
1. Press **[MASK]**	
2. Enter 1 on the keypad.	
3. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
4. Press the controller 7's SK.	The assignment is recognized as a group. *Grp* appears on the controller display.

Assigning Editor Groups

Channels can be assigned to controllers.

When channels are assigned without specifying a dimmer intensity; you can fade the dimmer of the channel from 0% (or the current output) to Full.

Channels may be assigned with a specified dimmer intensity. In this case, the specified dimmer intensity is reached when the controller is at 100%.

Assigning channels

Example: Assign channels 30 - 35 to controller 6.

Keypresses	Results/Comments
1. Select channels 30 – 35	
2. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
3. Press controller 6's SK.	The controller LED is lit (green) and *grp* appears on the controller display. Raising the controller fades the channels their the current output to Full.

Adding a channel to a grp

Example: Add channel 36 to the group of channels already assigned to controller 6.

Keypresses	Results/Comments
1. Select channel 36	
2. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
3. Press controller 6's SK.	Channel 36 is added to the group of channels already resident in controller 6

➢Note

If a channel is added or removed from a memory assigned to a controller, the assignment becomes a group of channels. The original memory remains unchanged.

Removing a channel from a grp

Example: Remove channel 34 from the group of channels resident in controller 6.

Keypresses	Results/Comments
1. Select channel 34.	
2. Press **[ZERO]**	
3. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
4. Press controller 6's SK.	Channel 34 is removed from the group on controller 6.

Assigning a channel with a specified intensity

Example: Assign channel 1 at 45% and channels 3 - 8 at 50% to controller 7.

Keypresses	Results/Comments
1. Select channel 1.	
2. Press **[**@4.5 or use the dimmer wheel	
3. Select channels 3 → 8	
4. Press **[ON]**	The editor now contains channel 1 @ 45 and channels 3 → 8 @ 50. (Access **[ON]** with **[SHIFT]**)
5. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
6. Press controller 7's SK.	When controller 7 is raised to its upper limit channel 1 is output at 45% and channels 3 → 8 at 50%.

Assigning a range of channels to sequential controllers

Example: Assign channel 40 to controller 8, channel 41 to controller 9, channel 42 to controller 10, channel 43 to controller 11, until all the controllers from 8 to controller 20 have single channels assignments.

Keypresses	Results/Comments
1. Select channel 40	
2. Press **[→]**	
3. Press **[ASSIGN]**	The message *Assign Key Expected* is displayed.
4. Press controller 8's SK.	Channel 40 is assigned to controller 8, channel 41 to controller 9, channel 42 to controller 10, etc. *Grp* is shown on the controller display.

Assigning Scrollers

The keypresses used to assign scroller channels to Controllers influence the scroller behavior when fading the assignments. The System Parameters toggle *Jump on Fade yes/no* (see Chapter 16 – System Configuration) also influences behavior of scroller assignments.

Assignment Sequence	Jump on Fade	Move controller from 0%	Fade controller to 0%
[CHAN #] [FRAME] [ASSIGN] [SK]	Yes	Scroller jumps to the last frame.	Jumps to tracking or output from a playback device
	No	Scrolls from tracking or current output to last frame.	Scrolls to tracking or output from a playback device
[CHAN #] [FRAME] [#] [ASSIGN] [SK]	Yes	Jumps to the assigned frame.	Jumps to tracking or output from a playback device
	No	Scrolls to the assigned frame.	Scrolls to tracking or output from a playback device
[CHAN #] [@] [#] [FRAME] [#] [ASSIGN] [SK]	Yes	Dimmer fades up. Scroller jumps to the assigned frame.	Dimmer fades down. Scroller jumps to tracking or output from a playback device.
	No	Dimmer fades up. Scrolls to the assigned frame.	Dimmer fades down. The frame scrolls to tracking or output from a playback device

Adding text to a grp assignment

Text can be added to group assigned to controllers. The text is displayed in Controller Exam and Snap Exam.

Keypresses	Results/Comments
1. Press **[TEXT]**	The command line reads: *Press TEXT or Assign Key!*
2. Press the controller's SK.	The command line reads: *Pot # Text*
3. Type on text keyboard.	
4. Press **[STORE]**	The message *Memory Pot Stored* is displayed.

Erasing text

Keypresses	Results/Comments
1. Press **[TEXT]**	The command line reads: *Press TEXT or Assign Key!*
2. Press the controller's SK.	The command line reads: *Pot # Text*
3. Press **[ERASE]**	The text is erased from the group assignment.

Examining a Controller Assignment

You can examine controller assignments directly.

Example: Examine the assignment on controller 7.

Keypresses	Results/Comments
1. Press **[EXAM]**	
2. Press controller 7's SK.	The controller number, type of assignment and assignment text is displayed at the bottom of the screen. The assignment's channels are displayed.
3. Press **[STAGE]** to exit Exam mode.	The display returns to the current display format.

Freeing Controller Assignments

You can free an assignment from a single controller, a range of controllers, non-sequential controllers, and all of the controllers.

You can lock the **[FREE]** key. When **[FREE]** is locked *Free* is displayed in red in the command line. Lock **[FREE]** with a double hit on the key. *Free* is displayed in red in the command line.

Release by pressing **[FREE]** again or any key other than controller assignment keys.

Example: Release the assignment on controller 7.

Keypresses	Results/Comments
1. Press **[FREE]**	The message *Assign Key Expected* is displayed.
2. Press controller 7's SK.	
3. Press **[CLEAR]** to exit Free mode.	*Free* is cleared from the command line.

Freeing multiple controller assignments

You can free a range of controller assignments or just some of the controllers.

Keypresses	Results/Comments
1. Press and hold **[FREE]**	The message displayed is *Assign Key Expected*
2. Press as many SKs as desired.	
3. Press **[CLEAR]** to exit Free mode.	*Free* is cleared from the command line and the console is no longer in Free mode.

Example: Free assignments from controllers 2 → 9

Keypresses	Results/Comments
1. Press **[FREE]**	The message displayed is *Assign Key Expected*
2. Press controller 2's SK.	
3. Press **[→]**	
4. Press controller 9's SK.	Releases assignments from the selected controllers.
5. Press **[CLEAR]** to exit Free mode.	*Free* is cleared from the command line and the console is no longer in Free mode.

Freeing all controller assignments

Keypresses	Results/Comments
1. Press **[FREE]**	The message displayed is *Assign Key Expected*
2. Press **[→]**	Releases all of the controller assignments.
3. Press any key	*Free* is cleared from the command line and the console is no longer in Free mode.

Using 'Go Controller'

You can initiate an automatic fade for grp and memory assignments. The fade occurs regardless of the controller level. The direction of the fade appears on the controller displays.

Controller Position	**What happens**
Controller at 0%	Assignment fades to Full. Initiating a fade after the assignment has already faded to Full reverses the fade direction.
Controller at 100%	Assignment fades to 0%. Initiating a fade after the assignment has already faded to Full reverses the fade direction.
Controller at a level other than 0% or 100%	Assignment fades to Full. Initiating a fade after the assignment has already faded to Full reverses the fade direction. The fade completes at the controller level.

When an assignment has been faded with this method, the controller does not control it anymore. To regain control you must move the controller handle to recapture the assignment. Example: You initiated a fade with the controller handle at 50%. The assignment faded to Full and is displayed as such on the Stage display. If you move the controller handle to 0, the assignment remains at Full. You must move the controller handle to Full regain control.

Keypresses	**Results/Comments**
1. Press **[ASSIGN]**	Skip this step if the SK default mode is Assign.
2. Press **[SHIFT]**	*Go/Stp* is shown on the controller display under the mode.
3. Press a **[SK]**	The controller assignment fades according to the table above.
4. To stop and hold the fade press **[SHIFT]** and **[SK]**	
5. To restart the fade press **[SHIFT]** and **[SK]**	

➢Note

More than one controller can fade at the same time. Press **[SHIFT]** followed by any number of Soft Keys.

Fade times with 'Go Controller'

A memory assignment fades up according to its recorded time-in and down according to its recorded time-out. If there is no time-out assignment the memory fades down according to its time-in.

If a memory has a wait-in assignment the fade begins after the assigned wait time. During the wait period *Wait* is displayed in gray on a red background on the Controller display.

If a memory has a wait-out assignment the fade automatically begins a reverse fade after the assigned wait-out time. During the wait period *Wait* is displayed in gray on a red background on the Controller display. Example: Memory 1 fade times are time-in 5 and wait-out 3. The controller handle is at 0%. Initiate a fade. The memory fades to Full in 5 seconds, waits 3 seconds and fades back to 0 in 5 seconds.

A group of channels fades in the Default Memory Time.

Chasers

Chasers can be assigned to and run on 10 controllers simultaneously.

There are 2 playback modes for chasers: hard and soft. Hard chasers automatically step from memory to memory in 1/10 of recorded memory time. Soft chasers fade from memory to memory in recorded memory time. All time elements are implemented – time-in, time-out, delay, wait–in, wait–out. Chasers run automatically or can be stepped through manually.

Chasers can also be run using Sound-to-Light input.

Chasers are assigned to controllers in Assign mode.

➢Note

The controller handle must be off its 0 end stop when running a chaser that includes the dimmer parameter. Chasers that include parameters other than dimmer parameter are not dependent on the controller handle position.

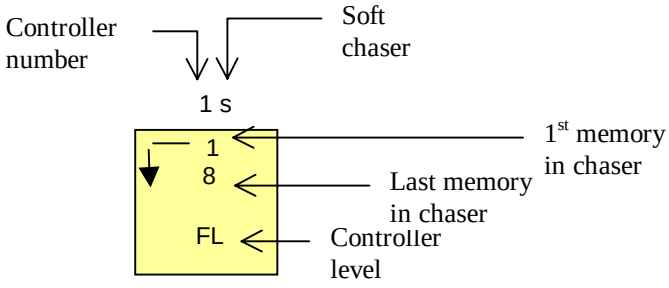
Chaser displays

There are two displays that provide chaser information. The Assign mode controller display shows all of the chaser assignments. The dedicated chaser controller display provides more detailed information pertaining to chaser status.

Chasers on the controller (Assign) display

The first and last memories in the chaser range are displayed,

If the assignment is a soft chaser a small s appears next to the controller number. If the assignment is a hard chaser nothing is displayed.



Color code for chaser playback display

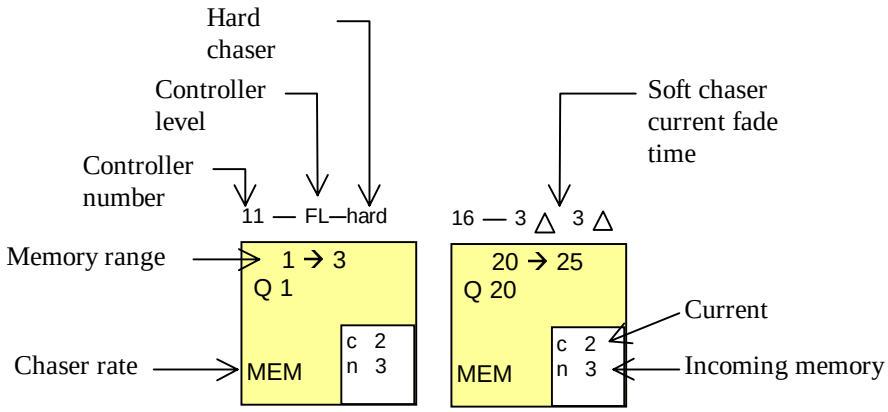
The controller number color indicates the playback status of the chaser.

Color	Playback status
Black on a red field	Chaser running
Red on a black field	Chaser on hold
Black on an orange field	Chaser in step mode

Viewing the Chaser display

There is a dedicated Chaser display available.

Access the dedicated Chaser display by a double hit on **[HARD]**. There are 10 squares provided for chaser display. Return to the controller display with a double hit on **[ASSIGN]**.



The color code for soft chasers time display is:

Time assignment	Color
Time-In	Light orange
Time-Out	Brown
Wait-In	Light red
Wait-Out	Dark red
Delay	Light red

Assigning chasers to controllers

You can assign a memory loop or a range of memories as a chaser. When assigning a memory loop as a chaser, select only the first memory of the loop.

Memory loops that are automatic continuous loops keep running until some action is taken to stop them.

Memory loops that are manual continuous loops behave like automatic continuous loops.

Memory loops that are finite loops run the specified number of times and then stop.

Memory range assignments behave like automatic continuous loops.

Example: Assign memory loop 5 → 8 as a hard chaser to controller 7.

Keypresses	Results/Comments
1. Select memory 5.	
2. Press **[HARD]**	The command line: *Hard Assign Key Expected*.
3. Press the controller 7's SK.	The controller LED blinks red indicating a chaser assignment on hold.

Example: Assign memory loop 5 → 8 as a soft chaser to controller 7.

Keypresses	Results/Comments
1. Select memory 5.	
2. Press **[SOFT]**	The command line: *Soft Assign Key Expected*.
3. Press the controller 7's SK.	The controller LED blinks red indicating a chaser assignment on hold.

Example: Assign memory range 5 → 8 as a hard chaser to controller 7.

Keypresses	Results/Comments
1. Select memories: **[MEMORY] [5 → 8]**	
2. Press **[HARD]**	The command line: *Soft Assign Key Expected*.
3. Press the controller 7's SK.	The controller LED blinks red indicating a chaser assignment on hold.

Example: Assign memory range 5 → 8 as a soft chaser to controller 7.

Keypresses	Results/Comments
1. Select memories: **[MEMORY] [5 → 8]**	
2. Press **[SOFT]**	The command line: *Soft Assign Key Expected*.
3. Press the controller 7's SK.	The controller LED blinks red.

You can also assign 10 whole memory numbers to a chaser by selecting the first memory only. Example: Assign memories 21 → 29 as a soft chaser.

Keypresses	Results/Comments
1. Select 21	
2. Press **[SOFT]**	The command line: *Soft Assign Key Expected*.
3. Press the controller SK.	The controller LED blinks red indicating a chaser assignment on hold.

➢Note

If there are intermediate memories in this range (memory 21.5, 22.5, etc.) they are included in this chaser.

Playing back chasers

Chaser playback can be either automatic or manual step mode.

When a running chaser is put on hold it stops and the dimmer of the channels participating in the chaser are blacked out.

When a chaser is running and the controller handle is at 0% all parameters except dimmer are output. For dimmer output the controller handle must be above 0.

Giving a Go command

You can manually fade the dimmer by giving the Go command and then brining up the controller level.

Keypresses	Results/Comments
1. Press the **[SK]** to start the chaser.	The controller LED stops blinking and is solid red. The controller display and chasers displays also indicate the chaser status.

Giving a Hold command

Keypresses	Results/Comments
1. Press the **[SK]** to stop the chaser.	Stopping the chaser blacks out and releases all the parameters participating in the chaser.

Stepping through the chaser

Keypresses	Results/Comments
1. Press and hold down **[SHIFT]**	
2. Press the **[SK]**.	The chaser advances 1 step. The LED is orange. The controller number is displayed in orange.
3. Press the **[SK]** to advance to the next step.	

Exiting the step mode

Keypresses	Results/Comments
1. Press the **[SK]**	The chaser runs automatically. The controller LED is solid red.

Or

Keypresses	Results/Comments
1. Double hit the **[SK]**	The chaser is put on hold. The controller LED blinks red indicating a chaser on hold.

Changing the playback mode

You can change the playback mode for an assigned chaser:

1. Press **[HARD]** or **[SOFT]**
2. Press the SK for the chaser. The new mode is displayed on the controller display.

Modifying the chaser rate

The chaser rate can be modified on the fly. The modified chase rate can be stored.

The chaser rate is displayed on the dedicated Chaser. It is recommended to have the Chaser display on view when modifying chase rates.

Use the wheel to modify the Chaser Rate. The rate is displayed in percentage. Moving the wheel up increases the rate, the maximum rate being 'cut'. Moving the wheel down slows the rate, the lowest value being 'hold'.

More than one chaser may be modified at the same time.

Keypresses	Results/Comments
1. Press **[RATE CHASE]**	The LED of the key is lit, indicating that the rate wheel is now active. The message *Assign Key Expected* is displayed.
2. Press the **[SK]** for the chaser you are going to modify.	The current chase rate, as shown on the Chaser display, now appears on a blue field
3. Move the wheel	The modified rate is displayed in percentage on a blue field on the Chaser display.

➢Note

To modify the Chase Rate for more than one chaser at the same time, press as many SKs as desired. The current rates for all selected chasers are displayed on blue fields, meaning that the wheel accesses all selected chasers.

Modifying the rates for additional chasers

If you want to continue and modify the Chase Rate of another chaser without changing the rate of the chaser you have just modified, you must re-select **[CHASE RATE]**.

Example: Change the Chase Rate for the chaser running on controller 7 to 20%. Then change the Chase Rate for the chaser running on controller 8 to Cut.

Keypresses	Results/Comments
1. Press **[RATE CHASE]**	The LED of the key is lit, indicating that the rate wheel is now active.
2. Press controller 7's **[SK]**.	The current chase rate, as shown on the Chaser display, now appears on a blue field
3. Turn the Rate wheel counterclockwise until the display shows 20%.	The modified rate is displayed in percentage on a blue field on the Chaser display.
4. Press **[RATE CHASE]**	The new Chase rate is displayed in blue on a gray field; it is no longer selected.
5. Press **[RATE CHASE]**	The LED of the key is lit, indicating that the rate wheel is now active.
6. Press controller 8's **[SK]**	The current chase rate, as shown on the Chaser display, now appears on a blue field
7. Move the wheel until the display shows 'Cut'.	

Storing the modified chase rate

You can store the modified chase rate. The modified rate is stored to the specific memory loop or memory range.

Keypresses	Results/Comments
1. Press **[RATE CHASE]**	The LED of the key is lit, indicating that the rate wheel is now active.
2. Press **[SK]** for chaser.	The current chase rate, as shown on the Chaser display, now appears on a blue field
3. Modify the chase rate using the Rate wheel.	
4. Press **[STORE]**	The **[RATE CHASE]** LED is extinguished the chase rate reverts to the normal display.

Returning to memory rate

Keypresses	Results/Comments
1. Press **[RATE CHASE]**	The LED of the key is lit, indicating that the wheel is now active for chase rate.
2. Press the **[SK]**	The current chase rate is displayed on a blue field
3. Turn the Rate wheel until the display shows MEM.	The modified rate is displayed in percentage on a blue field on the Chaser display.
4. Press **[RATE CHASE]** to exit the function.	MEM is displayed in blue.

Assigning Controllers as Submasters

The Submaster option operates in Assign mode. It provides inhibit submasters for memories and channels. Controllers can also be assigned to submaster the upper bank of controllers, the lower bank of controllers, the A/B crossfader, and DMX input.

Assigning controllers as inhibit submasters

Controllers may be designated as inhibit submasters.

Memories can also be assigned to an inhibit submaster, however the assignment is recognized as a group and submasters the channels included in the group. .

Keypresses	Results/Comments
1. Select the channels for assignment.	
2. Press **[SUBM]**	
3. Press the **[S.K.]** for submaster assignment.	*Sub* is displayed on a gray field.

Submastering playback devices

Controllers can be assigned to submaster the upper controllers, the lower controllers, the A/B crossfader and DMX input. **[U/L/X]** provides the submaster playback devices option. Access this key using **[SHIFT]**.

Submaster the Upper Bank of controllers

Keypresses	Results/Comments
1. Press **[U/L/X]**	*Submaster UPPER (1→ 10) controllers* is displayed in the command line.
2. Press the **[SK]** for submaster assignment.	*Sub 1 → 10* on a red field is displayed on the Controller display. *Pup* is displayed on the XFade Exam.

Submaster the Lower Bank of controllers

Keypresses	Results/Comments
1. Press **[U/L/X] [U/L/X]**	*Submaster LOWER (11→ 20) controllers* is displayed in the command line.
2. Press the **[SK]** for submaster assignment.	*Sub 11 → 20* on a red field is displayed on the Controller display. *Pdn* is displayed on the XFade Exam.

Submaster the A/B Crossfader

Keypresses	Results/Comments
1. Press **[U/L/X] [U/L/X] [U/L/X]**	*Submaster A/B* is displayed in the command line.
3. Press the **[SK]** for submaster assignment.	*Sub A/B 10* on a red field is displayed on the Controller display. *a/b* is displayed on the XFade Exam.

Submaster DMX Input

Any number of the DMX Input channels can be assigned to the Submaster. The default is all DMX Input channels. .

Keypresses	Results/Comments
1. Press **U[U/L/X] [U/L/X] [U/L/X] [U/L/X]**	*Submaster DMX input→ #* is displayed in the command line.
2. Optional – enter a number other than the default.	
3. Press the **[SK]** for submaster assignment.	*Sub I #* on a red field is displayed on the Controller display.

Sound-to-Light

To use the Sound-to-Light feature, your board must have the Sound-to-Light option installed. Plug a sound source into the Audio connector on Photon's back panel. The connector uses 3 pin XLR connectors.

Sound-to-Light operates memory, group, and chaser assignments on controllers. Each pulse operates 1 step of the chaser or flashes the memory or group assignment.

The Sound-to-Light must be enabled to allow controller response. Sound-to-Light response can be enabled or disabled for all or some of the controllers.

Sound-to-light assignments are stored in snaps and thus recorded with the show data.

You can make a macro to enable and disable Sound-to-Light for automatic operation.

Turning on sound-to-light

Selected or all controllers respond to Sound-to-Light. Controllers can be enable for Sound-to-Light only when there is an assignment present.

Programming 1 controller to respond

Keypresses	Results/Comments
1. Assign a group, a memory, or a chaser to a controller.	
2. Press **[S/L ON]**	
3. Press the controller Soft Key.	A controller that is listening to sound-to-light displays a musical note icon.

Programming all controllers to respond

Keypresses	Results/Comments
1. Press **[S/L ON]**	
2. Press **[→]**	A musical note icon is displayed for all controllers.

Programming selected controllers to respond

Example: Program controllers 1 → 8.

Keypresses	Results/Comments
1. Press **[S/L ON]**	*S/L On* appears in the command line.
2. Press controller 1's SK	
3. Press **[→]**	
4. Press controller 8's SK	A musical note icon is displayed for controllers 1 → 8.

Example: Program controllers 1, 3, 12, and 15.

Keypresses	Results/Comments
5. Press **[S/L ON]**	*S/L On* appears in the command line.
6. Press the **SK** for controller 1.	
7. Press the **SK** for controller 3.	
8. Press the **SK** for controller 12.	
9. Press the **SK** for controller 15.	A musical note icon is displayed for controllers 1, 3, 12, and 15.

Turning off Sound-to-Light

To turn off the Sound-to-Light function, use the key sequences described above.

Press **[S/L Off]** instead of **[S/L On]**. Access **[S/L Off]** with **[SHIFT]**

Sound-to-Light display

A controller that is listening to sound-to-light has a musical note icon on the controller display and, if the assignment is a chaser, on the chaser display.

When the sound-to-light function is assigned to a controller, the musical icon is red. When triggered the icon changes colors.

Controller response

Memory and group assignments

Sound-to-light triggers a flash for a group or memory assignment. Each time a pulse within the response range is transmitted the controller assignment flashes. The light remains on as long as the sound-to-light pulse falls within the tone response range. When the pulse is outside of the response range the light output returns the level determined by fader position.

Chasers

Chasers operation is identical to step operation. The initial response activates step 1 of the chaser, the next pulse triggers step 2, and so on. Both hard and soft chasers are responsive to sound-to-light.

To temporarily stop a chaser from responding

1. Press the **[SK]** as if you are putting the chaser on Hold.
2. To re-instate the chaser's response, press the **[SK]** again as if you are giving the Go command.

A chaser that is enabled for Sound-to-Light operation cannot be operated manually. If you want to take over the chaser operation, you must disable the Sound-to-Light for that controller.

CHAPTER 12
EVENTS

This chapter includes:

Overview

The Event menu

- Programming an Event
- Adding operations to an Event
- Deleting an Event
- Adding a text to an Event
- Examining Events

Operating Events

- Assigning an Event to a memory
- Erasing an Event from a memory
- Operating an Event using the editor

Overview

Events are a collection of functions that can be triggered using various methods:

- SMPTE time code assignments
- Operated in the editor
- Assigned to memories and operated automatically when the memory sequences on the A/B crossfader.

Events include assignments and playback commands to A/B and controllers and Macro operation.

The Auto key must be active (Auto On LED on) to operate Events assigned to memories.

Events are programmed in the Event Menu. Events can be numbered from 0.1 to 999.9.

The Event Menu

The options in the Event menu are:

- **F2 Assign A/B**: Assignments and commands to A/B – memory assignment, Go, or Hold.
- **F4 Assign Cntrlr**: Assignments and commands to controllers – assigning chasers (hard chaser or soft chaser) and memories, Go, Hold. Events support more than 1 controller assignment.
- **F5 Macro**: Only 1 Macro can be assigned to each Event.

Each Event can contain all of the operation options.

Assign To	Commands	Options	What Happens when the Event is operated
A/B	Assign Mem #	Assign	The memory is assigned to the free fader.
		Go	The memory is assigned to the free fader and a crossfade is initiated from current assignment to the assignment made using Event.
	Go		A Go command is given to the A/B crossfader.
	Hold		A Hold command is given to the A/B crossfader.
Controllers	Assign Mem #	Thru Mem #	Select a range of memories for chaser assignment.
		Assign Cntrlr	Assign the selected memory to a controller.
	Assign Chaser	Hard Chase	
		Soft Chase	
	Go Chaser		Gives a Go command to the chaser on controller.
	Go contrlr		Initiate a fade of the controller assignment.
	Hold chs/cntr		Hold a running chaser or a controller fade.
	Hard Chaser		Changes the Chaser mode form Soft to Hard.
	Soft Chaser		Changes the Chaser mode form Hard to Soft.

Programming an Event

Example: Program Event 3. Assign a range of memories (memories 8 - 10) as a chaser to controller 20. The chaser starts to run on assignment.

Keypresses	**Results/Comments**
1. Press **[MENU] [21] [ENTER]**	You are now in the Event menu. If there are no Events the message *Event Empty* is displayed. Photon prompts for an Event number.
2. Select **3** on the numeric keypad.	
3. Press **F4 Assign Cntrlr**	The console prompts for a controller number.
4. Enter 20 on the keypad.	
5. Press **F1 Mem # To Assign**	The system now prompts for the memory number.
6. Enter 8 on the numeric keypad.	
7. Press **F1 Thru mem #** or Press **[→]** and enter 10 on the keypad.	
8. Press **F3 Go Chaser**	
9. Press **F1 Hard Chaser** or **F2 Soft Chaser**	Event 3 is displayed in the Event List. The Event menu returns to the main screen and prompts for the next Event number.

Adding operations to an Event

Example: Add operation of Macro 12 to Event 3.

Keypresses	**Results/Comments**
1. Enter the Event number again, in this example, 3.	
2. Press **F5 Macro**	The system prompts for the Macro number
3. Press **F6 Macro #**	
4. Enter 12 on the numeric keypad	
5. Press **F1 Store**	Macro 12 is added to Event 3.

Deleting an Event

You can delete an entire Event or selected assignments within the Event.

Example: Delete Event 3.

Keypresses	Results/Comments
1. Go to the Event menu.	The system prompts you to enter the Event number.
2. Press 3 on the keypad.	
3. Press **F1 Delete**	
4. Press **F1 All**	The Event is deleted and is no longer displayed in the Event list.

Example: Delete the controller assignment from Event 3.

Keypresses	Results/Comments
1. Go to the Event menu.	The system prompts you to enter the Event number.
2. Press 3 on the keypad.	
3. Press **F1 Delete**	
4. Press **F4 Cntrlr**	The console prompts for a controller number since there can be more than 1 controller assignment.
5. Press **F1 Store**	The controller assignment is deleted. Only the Macro assignment remains.

Adding text to an Event

Text can be added to existing Events in the Event menu.

Keypresses	Results/Comments
1. Go to the Event menu.	
2. Select the Event number.	
3. Press **F6 Text**	
4. Type the text on the alphanumeric keyboard.	
5. Press **F1 Store**	The text is displayed in the text column of the Event List and, if the Event is assigned to a memory, in the Memory List.

Examining Events

You can view the Event List while in the editor.

Keypresses	Results/Comments
1. Press **[EVENT]**	
2. Press **[EXAM**	The Event List is displayed. If there are SMPTE assignments they are also displayed.

Operating Events

There are three ways to operate Events:

1. You can assign Events to memories. Crossfading, on A/B, to memories with Event assignments triggers the Event.
2. You can operate Events directly through the editor.
3. Events can be assigned SMPTE time codes and operated via SMPTE. Photon has a simple Teach Me function for assigning SMPTE time codes to Events (see Chapter 19 SMPTE). SMPTE time codes can also be programmed manually.

Assigning an Event to a memory

An Event can be assigned to more than 1 memory. This is useful if you have, for instance, programmed an Event that gives a go command to a show curtain chaser assigned on a controller. You will probably want this Event to operate each time the show curtain closes. Therefore you could assign it to the preset, the intermission cue, and the memory that is active when the final curtain is brought in.

Example: Assign Event 3 to memory 10.

Keypresses	Results/Comments
1. Select memory 10.	
2. Select Event 3 – press **[EVENT]** and enter 3 on the keypad.	
3. Press **[STORE]**	Event 3 is assigned to memory 10 and is thus displayed on the memory list. Event 3 is operated when the Go command, that begins the crossfade to memory 10, is given.

➢Note

[AUTO] must be active (LED on) to operate Events sequencing on the A/B crossfader.

Events for A/B are ignored when operating the Event by sequencing on the A/B crossfader.

Erasing an Event from a memory

Example: Erase Event assignment from memory 10.

Keypresses	Results/Comments
1. Select memory 10.	
2. Press **[EVENT]**	
3. Press **[ERASE]**	The Event assignment for memory 10 is erased.

Operating an Event using the editor

Events can be operated in the editor.

Keypresses	Results/Comments
1. Press **[EVENT]**	*Event* appears in the command line.
2. Enter the Event number on the keypad.	
3. Press **[ENTER]**	The selected Event is triggered.

CHAPTER 13
EFFECT

This chapter includes:

Overview

Programming an Effect

- Using the editor output
- Using the editor and playback devices
- Assigning a pattern

Modifying Effects

- Modifying steps
- Removing channels from a step
- Modifying step time
- Inserting a step
- Deleting a step

Assigning Loops to Effects

Adding text

Deleting an Effect

Copying an Effect

Playing back Effects

Examining Effects

Overview

The console supports up to 99 Effects.

Effects, like chasers, are made up of a number of steps. Effects are programmed in the Effect menu, by assigning channels to steps. An Effect can be assigned a chase pattern. The default pattern is a hard chaser.

All of the channels in the step are output at the same intensity assignment. The intensity is determined by the highest intensity assignment. Channels that were stored with a lower intensity assignment are output during playback according to the highest level assigned in the step.

Each step has a time assignment. The time assignment determines how long the step stays on stage before the fade to the next step begins. The default time assignment is the same as the Default Memory Time as assigned in the System Parameters menu.

Programming an Effect

A step is programmed using the editor and/or playback device output to assign to the step. Step time assignments determine how long the step stays on stage before the fade to next step begins. You can assign time to a step before beginning to program the step or when modifying the step.

Using the editor output

Keypresses	Results/Comments
1. Go to the Effect menu.	
2. Press **F1 Editing Effect**	The console prompts for an Effect number.
3. Enter the Effect number.	
4. Press **F1 Create Step**	If no steps exist the default for this selection is 1. If there are some steps the default is the next step.
5. Press F5 Time	You are prompted for a number.
6. Enter the step time.	
7. Press **F3 Select Channels**	The console prompts for a channel number.
8. Select channels and assign intensity.	Channels with intensity assignment are live on stage.
9. Press **F1 Step as Editor**	The editor is recorded as step 1 and automatically reset. The console prompts for the next step.
10. Repeat procedure for more further steps	

Using the editor and playback devices

Instead of selecting channels in the editor, a step may be created using the assignments on the controllers and crossfaders.

Keypresses	**Results/Comments**
1. Go to the Effect menu.	
2. Create a lighting state using the assignments on the playback devices.	
3. Select channels and assign intensity.	
4. Press **F1 Step As Stage**	The lighting state, the entire board output, is recorded as a step. Channels are released from the editor.

Assigning a pattern

The last step in the process is assigning a pattern.

The default pattern is Step, which plays back like a hard chaser.

There are 5 patterns to choose from:

- **STEP (F1)**- is a normal chase pattern. Each step is flashed in turn.
- **SHADOW (F2)**- brings all the steps to their assigned levels one after the other and then bumps all of the steps to zero at the same time.
- **BUILD (F3)**- brings each step to its assigned level, one after the other, until all the steps are on. Then each step is bumped out in turn to 0%.
- **RANDOM (F4)**- flashes all the steps at random.
- **BOUNCE (F5)**- runs forwards and backwards (example: 1 - 2 - 3 - 4 - 3 - 2 - 1)

Keypresses	**Results/Comments**
1. After storing the last step, press **F5 Create Pattern**	
2. Select a pattern.	The selected pattern type is assigned and displayed.

Modifying Effects

All of the functions described below are found under the main option: **F1 Editing Effect**.

Modifying steps

Steps are modified using the same procedure for creating steps, either in the editor or with the stage outputs.

Keypresses	Results/Comments
1. Press **F1 Editing Effect**	You are prompted for the Effect number
2. Enter the Effect number on the keypad.	
3. Press **F2 Modify Step**	You are now prompted to enter the step number you wish to modify.
4. Enter the step number on the keypad.	
5. Select channels.	
6. Press **F1 Step as Ed** or Press **F3 Step as Stage**	To store the editor output only, choose this option. To store the editor and stage output, choose this option.

Removing channels from a step

Keypresses	Results/Comments
1. Press **F1 Editing Effect**	You are prompted for the Effect number
2. Select a channel.	
3. Assign 0% intensity or press **[RELEASE]**	

Modifying step time

Keypresses	Results/Comments
1. Press **F1 Editing Effect**	
2. Enter the Effect number on the keypad.	
3. Press **F2 Modify Step**	The console prompts for step number.
4. Enter the step number for modification.	
5. Press **F4 Time**	
6. Enter the new time for the selected step/s.	
7. Press **F1 Step as Editor**	The modified step time is displayed under the time column.

Modifying the time for a range of steps

Keypresses	Results/Comments
1. Press **F1 Editing Effect**	
2. Enter the Effect number on the numeric keypad.	
3. Press **F4 Modify Time**	The console prompts for step number.
4. Enter the step number.	
5. Press **F1 Thru Step**	The console prompts for step number.
6. Enter the step number.	
7. Press **F1 Time**	
8. Enter the new time for the selected steps.	
9. Press **F1 Store**	The modified step time is displayed under the time column.

Inserting a step

Keypresses	Results/Comments
1. Press **F1 Editing Effect**	
2. Enter the Effect number on the keypad.	
3. Press **F3 Insert Step**	The console prompts for a step number.
4. Program the step as described above.	
5. Store the step	The steps following the newly inserted step are incremented by one whole number. Example: If a step has been inserted between steps 3 and 4, step 4 will become step 5, step 5 will become step 6, and so on.

Deleting a step

Keypresses	Results/Comments
1. Press **F1 Editing Effect**	The console prompts for an Effect number.
2. Enter the Effect number on the numeric keypad.	
3. Press **F1 Delete Step**	You are prompted for the step number that you want to delete.
4. Enter the step number on the numeric keypad.	
5. Press **F1 Store**	

Assigning Loops to Effects

The default loop assignment for Effects is an infinite loop; the Effect runs until something is done to stop it.

A specific number of loops may be assigned to an Effect. This limits the number of times an Effect runs after each GO command.

Keypresses	Results/Comments
1. Press **F1 Editing Effect**	The console prompts for an Effect number.
2. Enter the Effect number on the keypad.	
3. Press **F6 More…**	
4. Press **F2 No. of Loops**	You are prompted for the number of loops.
5. Enter the number of loops on the numeric keypad.	
6. Press **F1 Store**	The number of loops appears in the menu header.

Re-assigning an automatic continuous loop to Effects

Pressing **F3 Autoloop** returns the Effect's loop assignment to automatic continuous loop, which is the default assignment. The loop assignment is displayed as < -- > under Loop, in the header.

Adding text

You can add a text label to Effects. .

Keypresses

1. Press **[EFFECT]** (on the Touch Screen).
2. Press **[TEXT]**
3. Type the label on the text keyboard.
4. Press **[STORE]**

Deleting an Effect

A single Effect or a range of Effects may be deleted at the same time. .

Keypresses	Results/Comments
1. Press **F2 Delete Effect**	The list of Effects is displayed.
2. Select the range of Effects for deletion.	
3. Press **F2 Thru Effect**	Use this key to delete more than one Effect.
4. Select the range of Effects for deletion.	
5. Press **F1 Store**	Deletes the selected Effects and terminates the function.

➢Note

The Delete and Copy functions appear on the first page of the Effect menu. If you are not one the first page of the menu, you must exit the menu and enter the menu again to see the first page.

Copying an Effect

An Effect may be copied as many times as desired. After copying an Effect, it can then be modified.

Example: Copy Effect 2 to Effect 4.

Keypresses

1. Press **F3 Copy Effect**
2. Select 2
3. Press **F1 To Effect #**
4. Choose the new Effect number on the keypad, in this example press **4**.
5. Press **F1 Store**

Playing Back Effects

Effects are assigned and played back like chasers. They can be assigned as Hard chasers or Soft chasers. Example: Assign Effect 3 to controller 5 as a soft chaser.

Keypresses	Results/Comments
1. Press **[EFFECT]** and enter 3 on the keypad.	
2. Press **[SOFT]**	
3. Press controller 5's Bump Button.	The LED blinks red indicating an assignment that is on Hold. *EFF* is displayed on the controller LCD display.

Examining Effects

You can view either the list of Effects that you have recorded or individual Effects. .

Viewing the Effect list

Keypresses	Results/Comments
1. Press **[EFFECT]**	
2. Press **[EXAM]**	A list of recorded Effects is displayed.
3. Press **[STAGE]** to exit the display.	

Examining an Effect

Example: Examine Effect 3.

Keypresses	Results/Comments
1. Press **[EFFECT]**	
2. Enter 3 on the keypad.	
3. Press **[EXAM]]**	The steps, pattern, and time assignments are displayed. The display is identical to what you see in the Effect menu.
4. Press **[STAGE]** to exit the display.	

CHAPTER 14
SNAPS

This chapter includes:

Overview

Programming a Snap

Adding text to Snaps

Examining Snaps

- Viewing the Snap list
- Examining a selected Snap

Erasing Snaps

Operating Snaps

- Operating Snaps in non-forcing mode
- Operating Snaps in forcing mode
- Using Snap to clear all assignments

Overview

Snaps are analogous to preset scenes. They are 'snapshots' of all playback device assignments.

Snaps record A/B crossfader assignments and all types of controller assignments for instantaneous recall. Snaps are recorded by making assignments to the crossfaders and controllers and then recording the Snap. Snap stores *all* of the assignments, so be sure that you have no extraneous crossfader or controller assignments.

Example of the use of snaps: assume you are running a show with 10 songs. 6 chasers are used in each song. Assign the chasers for song number 1 to the controllers and record Snap 1. Free the assignments, assign the chasers for song 2, and record Snap 2, etc. During the show, use the snaps to assign the chasers when switching from song to song.

Snaps 1 - 20 can be operated via the controller Soft Keys in Snap mode (see below) or in the editor. Snaps 21 - 99 are operated via the editor only.

The assignment type and run mode information is also recorded in the Snap. The run mode information is displayed in the Snap Exam. The mode is generally represented by letters.

Programming a Snap

Example: Snap 9 is:
Memory 1 on A. **[SEQ]** on.
Memories 15 → 20 Soft chaser on controller 1.
Memories 25 → 30 Soft chaser controller 2.
Channel 10 on controller 11.

Keypresses	Results/Comments
1. Select memory 1 and press **[A]**	
2. Press **[SEQ]**	
3. Select memories 15 → 20	
4. Press **[SOFT]** and assign to controller 1.	
5. Select memories 25 → 30	
6. Press **[SOFT]** and assign to controller 2.	
7. Select channel 10 and assign to controller 11.	
8. Press **[SNAP]**	*Snap* is displayed in the command line.
9. Press **9** on the numeric keypad.	
10. Press **[STORE]**	The message *Snap 9 Stored* is displayed. If snap 9 already exists, the message *Snap Exists* appears. To overwrite press **[STORE]** again.

➢Note

Instead of steps 9 and 10 you can press **[+1STORE]**.

Adding Text to Snaps

Text labels can be attached to snaps.

Keypresses	Results/Comments
1. Press **[SNAP]**	*Snap* is displayed in the command line.
2. Enter the Snap number on the numeric keypad.	
3. Press **[TEXT]**	
4. Type the text on the alphanumeric keypad.	
5. Press **[STORE]**	Text for Snaps is displayed in all Snap exams. The first 5 characters are displayed on the Controller display in Soft Key Snap mode

Examining Snaps

There are 2 Snap Exams. The Snap List is a list of all the Snaps with their text labels. Selected Snap Exams show all the playback device assignments stored in the Snap and their run modes.

Viewing the snap list

Keypresses	Results/Comments
1. Press **[SNAP]**	*Snap* is displayed in the command line.
2. Press **[EXAM]**	A list of the snaps and any textual notes is displayed. This is a strong Exam display.

Examining a selected Snap

Keypresses	Results/Comments
1. Press **[SNAP]**	*Snap* is displayed in the command line.
2. Select the snap on the numeric keypad	
3. Press **[EXAM]**	All information for the selected snap is displayed.
4. Press **[+]** or **[-]** to exam the next or previous Snap.	

Or

Keypresses	Results/Comments
1. Press **[EXAM]**	
2. Press **[SNAP]**	The message *Assign Key Expected* is displayed
3. Press the SK of the desired Snap.	
4. Press **[+]** or **[-]** to exam the next or previous Snap or press another SK.	

The run modes are generally represented by a letter:

Assignment Run mode	Represented by
Sequence on A/B	Q
Auto on A/B	A
Go chaser (the snap is recorded when the chaser is running)	G
Hard chase assignment	C
Soft chase assignment	1st memory number of chase assignment
Chaser in Step mode	S
Sound-to-Light	A musical note icon

Erasing Snaps

You can erase single snaps, a range of Snaps, all Snaps starting from a selected number, or all Snaps.

Erasing a single Snap

Keypresses	Results/Comments
1. Press **[SNAP]**	
2. Enter the Snap number on the numeric keypad.	
3. Press **[ERASE]**	The message *Snap/s Deleted* is displayed.

Example: Erase Snaps 3 → 12.

Keypresses	**Results/Comments**
1. Press **[SNAP]**	
2. Select the Snap range - Press **[3 → 12]**	
3. Press **[ERASE]**	The message *Snap/s Deleted* is displayed.

Example: Erase all Snaps starting from Snap 20

Keypresses	**Results/Comments**
1. Press **[SNAP]**	
2. Enter 20 on the keypad.	
3. Press **[→]**	
4. Press **[ERASE]**	The message *Snap/s Deleted* is displayed.

Example: Erase all Snaps

Keypresses	**Results/Comments**
1. Press **[SNAP]**	
2. Press **[→]**	
3. Press **[ERASE]**	The message *Snap/s Deleted* is displayed.

Operating Snaps

There are two snap operation modes: non-forcing (additive) and forcing mode.

Snaps never force an assignment to A/B. Assigning a memory or group to A/B using snap is permitted only when A/B is empty.

Snaps 1 – 20 can be operated using the SKs in Snap mode. All other Snaps are operated in the editor.

Operating Snaps in non-forcing mode

A non-forcing mode Snap affects only controllers that are at 0%. If a controller is off the end stop and assigned, its Snap assignment will “wait in the wings” until the fader is returned to 0%. When a Snap assignment is “waiting in the wings” a yellow asterisk is displayed next to the controller number and the fader number is yellow.

Example: In Snap 1 controller 8 has a group assignment. When the Snap is operated, controller 8 already has an assignment and is at 80%. All the Snap assignments execute (assuming the controllers are at 0%), except the assignment to controller 8; it waits until controller 8 to is returned to 0%, then waiting Snap is assigned

Keypresses	Results/Comments
1. Press **[SNAP]**	*Snap* appears in the command line.
2. Enter the snap number on the numeric keypad.	
3. Press **[ENTER]**	'Snaps' all the assignments recorded in Snap 1 into their playback devices providing the playback device is not controlling any current output.

Snaps 1 – 20 can be operated using the Soft Keys in Snap mode.

Keypresses	Results/Comments
1. Press **[SNAP]**	Skip this step if the SK mode is Snap.
2. Press the SK of the Snap.	'Snaps' all the assignments recorded in the selected Snap into their playback devices providing the playback device is not controlling any current output.

Operating Snaps in forcing mode

A forcing mode Snap affects all Controller assignments, regardless of their output level. Referring to the example above, the group assignment to controller 8 bumps out the assignment on controller 8 and is, of course, immediately active on-stage.

Unassigned Controllers in the Snap free current assignments regardless of their output level. Example: Controllers 1 – 8 are currently assigned. Some of the controllers are active and some are not. In the Snap controllers 1 – 8 have no assignments. When you operate this Snap in forcing mode the assignments on controllers 1 – 8 are freed.

A/B assignments are not influenced by Snaps operated in forcing mode.

Keypresses	**Results/Comments**
1. Press **[SNAP]**	*Snap* appears in the command line.
2. Press **[+]**	
3. Select the snap number on the numeric keypad.	
4. Press **[ENTER]**	'Snaps' all the assignments recorded in Snap 1 into place regardless of the playback devices' output status.

Snaps 1 – 20 can be operated using the Soft Keys in Snap mode.

Keypresses	**Results/Comments**
1. Press **[SNAP]**	Skip this step if the SK mode is Snap.
2. Press and hold **[SHIFT]**	*Snap +* is displayed under the SK mode.
3. Press the SK of the Snap.	'Snaps' all the assignments recorded in the selected Snap into place regardless of the playback devices' output status.

Using Snap to clear all assignments

You can use Snap to free controller and A/B assignments.

Keypresses	**Results/Comments**
1. Press **[SNAP]**	
2. Press **[0]**	*Snap Free all panel!!* is displayed in the command line. The message *Are you Sure?* is displayed.
3. Press **[ENTER]**	All playback device assignments are freed.

CHAPTER 15
MACROS

This chapter includes:

Overview

The Macro menu

- Programming Macros
- Modifying Macros
- Linking Macros
- Dedicated function Macros
- Adding text to Macros
- Deleting Macros
- Last 40 keypresses

Using Teach Macro

- Programming with Teach Macro

Operating Macros

- Operating Macros Using Soft Keys
- Operating Macros using the numeric keypad

Overview

A Macro is a collection of keystrokes. Photon stores up to 999 Macros containing up to 40 keypresses each. Macros can include any keys on the board and are usually programmed as shortcut keys for any sequences or functions that are frequently used. Wheel or controller movements are not recognized by Macros.

Macros can be programmed blind in the Macro menu or live using the Teach Macro function. The Teach Macro option allows making Macros for menu functions.

Macros may be operated manually in the editor or using the SKs in Macro mode (for Macros 1 – 40 only) or triggered automatically via Events.

Macros can be embedded Events.

There are options in the Macro menu to create Macros for special functions. An example of a Macro for a special function is Print. When activated this Macro works as Print Screen does on an alphanumeric keyboard.

The system automatically prefixes a new Macro with the current SK mode. This ensures that the Macro operates in the mode in which it was recorded. This is especially important when Macros contain Soft Keys, since their function changes from mode to mode. After Macro operation the default mode returns to its original state.

Example: Macro is the current default mode. Macro 5 was programmed in Assign mode and consists of “go controller” commands; for instance, SK1, SK2. When the Macro was programmed ‘assign assign” was automatically assigned as the first entries in Macro 5. Obviously if this Macro had no mode assignment, operating it in Macro mode would trigger Macros 1 and 2, instead of initiating a fade of the assignments on controller 1 and controller 2. If desired, this prefix can be omitted by clearing the entries under the Modify Macro option in the Macro menu.

The Macro Menu

The Macro menu is menu number 9.

Macro programming in the Macro menu is blind. You do not see the results of the keypresses on stage.

The options available in the Macro menu are:
Create Macro.
Delete Macro.
Modify Macro.
Assign text to a Macro.
Assign Macros to DMX Input channels.
Store the last 40 keypresses as a Macro.

When you store a Macro it is added to the Macro list that appears in the Macro menu.

You can also view this list by pressing **[F6]** while in the editor.

[PAGE UP] and **[PAGE DN]** goes to the previous or next page in the Macro list.

Programming Macros

To select a Macro number, enter a 3-digit number on the keypad. Example: **003**, **030**, **and 300.**
You can also enter a 1 or 2 digit number on the keypad and finish the selection by pressing **[F1 Enter]**. Example: **[3] [F1 Enter], [30] [F1 Enter]**. Use F keys F1 – F5 for direct selection of numbers 1 – 5.

If you try to assign a Macro number that is already in use, the message *Macro Exists* is displayed. You can either press **[F6 Restart]** and begin the sequence again or press **[F1 Delete & Modify]** to overwrite the Macro.

You can exit the Macro menu in the middle of programming without losing your work by pressing **[MENU]**. Pressing **[MENU]** again returns you where you were.

For an example of a typical Macro see below. Macro 12 assigns the loop of memories 50 - 55 as a hard chaser to controller 5 and gives a Go command. It also gives a Go command to a chaser assigned to controller 3. (memories 70 - 80).

Keypresses	**Results/Comments**
1. Press **[MENU] [9] [ENTER]**	You are now in the Macro menu.
2. Press **F1 Create**	
3. Press **F6 Macro #**	The console prompts for the Macro number.
4. Press 012 on the numeric keypad or Press 12 and **F1 Enter**.	A blue window with the Macro number opens.
5. Press **[MEMORY] [50]**	Select the loop of memories for assignment.
6. Press **[HARD]**	The selection is added to the Macro.
7. Press controller 5's **SK**.	The selection is added to the Macro.
8. Press the controller's **SK**, which functions as a Go key.	The selection is added to the Macro.
9. Press controller 3's **SK** key.	The selection is added to the Macro.
10. Press **F1 Store Macro**	Macro 12 is stored and is displayed in the Macro list.

Modifying Macros

Modify Macros by deleting an erroneous entry or inserting a new entry. New entries are inserted in front of the cursor.

Keypresses	Results/Comments
1. Go to the Macro menu.	
2. Press **F3 Modify**	The prompt asks which Macro is to be modified.
3. Enter the Macro number.	A window opens displaying the selected Macro.
4. Use the arrows (**F2** and **F3**) to position the cursor over the error for deletion or the position for an additional keypress.	
5. If you are erasing an entry press **[CE]**. If you are adding a keypress, press it now.	
6. Press **F1 Store Macro**	The modified Macro is displayed in the Macro List.

Linking Macros

One Macro may be linked to another Macro. Linked Macros operate with a single keypress.

Linked Macros must be the last entry in the Macro sequence.

Example: Macro 12 is linked to Macro 50.

Keypresses	Results/Comments
1. Press **F1 Create**	
2. Press **F6 Macro #**	
3. Enter the Macro number on the keypad. In this case, 050.	
4. Execute desired keystrokes	Remember that up to 40 keystrokes are allowed and leave room for the linked Macro.
5. Press **F6 More Function**	
6. Press **F5 Macro #**	This option permits linking a Macro. *F6* is added to the Macro sequence.
7. Enter the Macro number on the keypad; in this case, **012**.	
8. Press **F1 Store**	Operating Macro 50 selects Macro 12 and allows its operation.

Dedicated function Macros

Macros can be created for special system functions or for frequently used functions. These dedicated special functions are accessed under **F1 Create Macro**.

They include:

- Load
- Record
- Print
- Memory dimmer

To program a Macro for the functions listed above:

1. Enter the Macro menu.
2. Press **F1 Create**.
3. Enter a Macro number in answer to the prompt.
4. Select the function pressing the appropriate F key.
5. Press F1 Store Macro.

Using special function Macros

Load

A Macro key assigned as Load saves opening the Load menu.

1. Select the Macro key designated as load.
2. Enter the play number of the show file you want to load. The current drive and directory are referenced.
3. Press the Load Macro again. While the loading function is active a *Wait* message appears. When the load is complete a message is displayed.

Record

A Macro key assigned as Record saves opening the Record menu.

1. Select the designated Macro key. *Record* appears in the command line.
2. Enter a show file number.
3. Press the Record Macro again. The current show data is recorded as a show file.While the recording function is active a *Wait* message appears. A message notifies you when the recording is complete.

Print

A Macro key, assigned as Print, can be used like Print Screen on the alphanumeric keyboard.

1. Go to the screen that you want to print.
2. Select the designated Macro key. Hearts run while the printer is working.

Memory Dimmer

When the Photon is teamed with the Compulite digital dimmers frame controller. The Memory Dimmer option provides a method for setting an emergency memory that takes over in case of a communication break.

To teach the dimmers the emergency memory stage picture, follow the instructions below. Please refer to the accompanying Dimmer literature for information on the communication break mode.

Enter the Macro menu and create a Macro (Macro 5, for example) as follows:

Keypresses	Results/Comments
1. Press **F1 Create Macro**	
2. Press **F5**	A window for Macro 5 opens.
3. Press **F6 F6** **F4 Memory Dimmer**	If this option is not visible, press **F6 More Function** to page through the options.
4. Press **F1 Store Macro**	Stores Macro 5 as the emergency memory.
5. Press **[RESET] [RESET]**	Leave the Macro menu and return to live mode.
6. Build a lighting state.	
7. Press **[=]**	Signals memory record mode. *MEMORY* appears in the command line.
8. Press **F5**	The word *Dimmer* appears in the command line after *Memory.*
9. Press **[STORE]**	The lighting state is now saved as a special preset that is activated if there is a communications break between the control board and the dimmers.

Adding text to Macros

A text label, typed on the alphanumeric keyboard, may be added to a Macro. Text can be typed before the Macro is created or added to an existing Macro.

Macro Text is displayed in the Macro List, on the controller display in Macro mode, and in the Start Macro window.

Keypresses	Results/Comments
1. Go to the Macro menu.	
2. Press **F4 Text**	
3. Select a Macro.	The Macro number followed by a yellow text area is displayed.
4. Type the text	
5. Press **F1 Store**	If the Macro exists, the console asks for a confirmation command. If there is no Macro the window opens and you can program a Macro now.
6. Press **F1 Store Macro**	

Deleting Macros

You can delete 1 Macro or a range of Macros.

Keypresses	Results/Comments
1. Go to the Macro menu.	
2. Press **F2 Delete**	The system prompts you to enter the Macro you wish to delete.
3. Enter a Macro number in response to the prompt.	
4. Optional – to delete a range of Macros press **F2 Thru Macro #** and enter the Macro number.	
5. Press **F1 Store**	The Macro is deleted from the Macro list.

Last 40 keypresses

The system collects the last 40 key presses in an unnamed Macro. This information is especially useful if you have run into a problem, or suspect a bug, and wish to save the last keypresses that might have caused the problem. This "Macro" is constantly changing as it updates with each keypress.

Keypresses that come from the console are displayed in yellow. If you are using a Rigger or a Universal Remote Control (UWR) the keypresses are displayed in blue. This color code is displayed above the Last 40 Keys in the line labeled Devices.

In the editor, you can view the Last 40 keypresses may by pressing **[F6]**.

You can store the last 40 keys as a Macro.

Keypresses	Results/Comments
1. Go to the Macro menu.	
2. Press **F6 --> 40 Keys**.	
3. Assign a Macro number.	
4. Press **F1 Store**.	The Last 40 Keys Macro, as displayed at the head of the Macro List, is now empty.

Using Teach Macro

The Teach Macro function allows you to program Macros live, thus viewing the result of each keypress included in the Macro.

The Teach Macro function also allows you to program Macros for menu functions.

Access **[TEACH MACRO]** using the **[SHIFT]** key.

It is important to remember that Macros are a collection of keystrokes. Any manual fader or wheel movement is not included in a Macro.

Macros that are programmed using Teach Macro include the SK mode as described above.

The options in the Teach Macro window allow you to Store Macros, erase the Macro, and temporarily disable Macro recording.

The options are available on the F keys and are as follows:

F1 (+1) STORE	The collection of keystrokes is stored as the last recorded Macro + 1.
F2 MACRO #	Use this to assign a Macro number and then press **F1 (+1) STORE** to store the Macro.
F3 TEXT	Press this key and then type text on the alphanumeric keyboard.
F4 DISABLE	Temporarily disable the Teach Macro function. Any keys pressed while the function is disabled will not be gathered into the Macro. The Teach Macro flag blinks and is displayed in dark blue while the function is disabled. Return to the Teach Macro function by pressing **[TEACH MACRO]** and **F4** to re-enable the function.
F5 ERASE	Clear all of the keystrokes already collected. Erasing the collected keypresses closes the Teach Macro function.
F6 EXIT	Close the Teach Macro window after enabling/disabling Teach Macro or after viewing the contents. **This does not store the Macro!**

You can view the Macro in progress without disabling the Teach Macro function.

1. Press **[TEACH MACRO].** The Teach Macro window opens.
2. Press **[TEACH MACRO]** or **F6 Exit**. The Teach Macro window closes.

Programming with Teach Macro

Keypresses	Results/Comments
1. Press **[TEACH MACRO]**	A window opens with the message *Enter key to start Teach Macro!*
2. Press **[ENTER]**	"Teach Macro [e]" appears at the top of the display. This flag flashes as long as the function is active.
3. Build the keystroke sequence for the Macro	All results are seen live on stage. Any key pressed while this function is active is included in the Macro.
4. Press **[TEACH MACRO]**	The Teach Macro window opens. The highest recorded Macro number is displayed in red at the bottom of this window.
5. Press **[F1 (+1)Store** or **[F2] [**enter a number**] [F1]**	

Operating Macros

Macros can be operated via Events (see Chapter 12 Events), operated using DMX input assignments (see Chapter 20 DMX Input), and triggered manually using the editor or the Soft Keys in Macro mode.

F1 - F5 provide direct single press access to Macros 1 - 5. The Macro operates when the key is pressed.

The SKs in Macro mode provide direct access to Macros 1 - 40.

Operating Macros Using Soft Keys

Macros 1 - 40 are automatically assigned to the controllers as they are programmed. There are 2 pages of Macros; page 1 accesses Macros 1 – 20 and page 2 accesses Macros 21 – 40.

When the SKs are in Macro mode, an orange LED indicates the presence of a Macro.

The Macro mode display shows Soft Keys with Macros in orange. The first 5 characters of the Macro text appear are displayed. If the mode is temporarily Macro, the display shows the Macro list. This is identical to the display when pressing **F6**. Page this list using **[PAGE UP]** and **[PAGE DN]**.

Operate Macros 1 - 20

Keypresses	Results/Comments
1. Press **[MACRO]**	Skip this step if Macro is the SK default mode or press this key to display the Macros.
2. Press an SK to operate a Macro. To operate Macro 6 press **[SK 6]**, Macro 12 **[SK 12]**, etc.	

Operate Macros 21 - 40

Keypresses	Results/Comments
1. Press **[MACRO]**	Pressing this key displays the Macros. You can skip this step if the SK default mode is Macro unless you want to view the Macro List.
2. Press and hold **[SHIFT]**	When **SHIFT** is pressed the display shows *21 – 40* under the Mode on the controller display.
3. Press an SK to operate a Macro To operate Macro 26 press **[SK 6]**, Macro 32 **[SK 12]**, etc.	

Operating Macros using the numeric keypad

When you select a Macro for operation, it is isolated in a window in the middle of the screen and the command line displays *Press F6 for start Macro!* in red. The Macro window closes automatically after 10 seconds. As long as the message is displayed in the command line you can press [F6] to operate the Macro. If you press any other key the Macro operation is aborted.

Keypresses	Results/Comments
1. Press **[F6]**	The Macro list is displayed. Page this list using **[PAGE UP]** and **[PAGE DN]**.
2. Enter the Macro number on the numeric keypad.	The Macro is displayed in a window for 10 seconds. The command line reads *Press F6 for start Macro!*
3. Press **[F6]**	The Macro is triggered.

CHAPTER 16
SYSTEM CONFIGURATION

This chapter includes:

Accessing Service Tools

Configuring in Service Tools

- Navigating in the Config System
- System Type
- CRT number
- Configuring control capacity
- Special Functions
- Special Numbers

System Parameters

- Operator definable parameters
- Print menu screen

Accessing Service Tools

1. Turn off the power
2. Press and hold down **[CE] [CLEAR]**.
3. Turn the power back on.
4. After a few seconds, release the keys.

After running some self-tests, Service Tools main menu is displayed. The information on the upper part of the screen shows the different sections of the program and EPROM. The lower area of the screen shows the current F key functions.

Configuring in Service Tools

The system configuration as defined in Service Tools is saved in non-volatile memory and, therefore, never changes unless new data is entered and saved.

There are 3 basic configuration areas:

F3 Control capacity – Define how many channels, scrollers, dimmers, DMX Input, and the maximum level of the General Master.

F4 Special Functions – NOVRAM bit toggles define basic system operation and enable or disable some functions.

F5 Special Numbers – Basic system configuration that requires numerical entries.

Keypresses	Results/Comments
1. Turn off the power.	
2. Press and hold down **[CE]** and **[CLEAR]**	
3. Turn the power back on.	
4. After a few seconds, release the keys.	After running some self-tests, the Service Tools main menu is displayed.
5. Press **F3 Config System**	The different components of the system configuration are displayed.
6. Enter the passcode if necessary.	
7. Choose one of the configuration options.	Each category opens a pull down list.
8. Enter the new information.	
9. Go to the next category and enter the new information.	
10. When the configuration is complete, press **F6 Enter & Exit**.	Before storing the new information the system asks for confirmation.
11. Press **F6** to store the changes.	

Important! Any change of configuration data necessitates cold starting the system. It is a good habit to turn the power off and back on and then Cold Start after storing new system configuration parameters.

To Cold Start the system:

Press F1 Cold Start on the Service Tools main menu.

Passcode

The items under the Config System section (F3 from the main Service Tools menu) that appear in red are protected by a pass code. This is to ensure that unauthorized personnel do not have access to the System Configuration. The default is pass code needed to access Special Functions and Special Numbers. The pass code can be obtained from your Compulite distributor. You have the option to also protect the channels, dimmer, scroller configuration. When bit W – Protect All (in Special Functions) is toggled to Yes, access to the quantity configuration is subject to the pass code.

Navigating in the Config System

Use the F keys to move the cursor and to go to the different options:

- **F2 Down** - moves the cursor down.
- **F3 Up** - moves the cursor up.
- **F4 Enter & Next** - enters the change and moves to the next option. Example: If you are working in **F4 Special Functions**, pressing this key opens **F5 Special Numbers**.
- **F5 Enter & Previous** - enters the change and moves to the previous option. Example: If you are working in **F4 Special Functions**, pressing this key opens **F3 Channels**.
- After all the system configuration data has been entered, select **F6 Enter & Exit**. Exit to the main screen of the Config Sys menu. If the configuration data has been changed confirmation is requested. Press **F6** again to confirm and store.

System Type

This is factory configured and cannot be changed.

CRT number

This is factory configured and cannot be changed. Photon supports 1 monitor only.

Configuring control capacity

The control capacity limits are:

- 240 Channels. Channels must be divisible by 8.
- 48 Scrollers. Scrollers must be divisible by 4.
- 512 dimmers – dimmers must be divisible by 8.
- DMX Input is from 0 – 512 (see Chapter 20 - DMX Input)
- The General Master maximum level can be set to 100% or 200%.

Keypresses	Results/Comments
1. Access Service Tools.	
2. If necessary, enter the passcode.	
3. Press **F3 Config System**	The configuration options are displayed.
4. Press **F3**	A pull down list is displayed.
5. Select the item that you want to modify, using **F2 Down** / **F3 Up**	
6. Enter the number of channels, scrollers, etc.	
7. Press **F6 Enter & Exit**.	Confirmation is requested. If you have made a configuration error an error message is displayed. Correct the error and store again.
8. Press **F6 Store Configuration** to confirm.	

Changing the maximum General Master level

The General Master Maximum Level allows you to choose the maximum level of the general master. It can be set at 100% or 200%.

When this item is highlighted, **F1 Toggle** becomes active. Toggle to select the maximum level of the general master and store the selection.

Special functions

Special Functions is selection **F4**. This area is used to define general parameters of the system. See the list of the NOVRAM toggles below. Spares are reserved for future use.

Use the arrows for selection and **F1** to toggle the assignment.

Bit	Function	Toggles	Description
A - 0	Spare	No	
B - 0	Printer Time-out	Long	Some printers work well with this bit set at *long*. Others work with this bit set to *short*.
C - 0	Master/Slave	Disable	not used for Photon
D - 0	Backup System	No	not used for Photon
E - 1	Printer Type		Use setting appropriate to your printer.

Bit	Function	Toggles	Description
F - 0	Spare	No	
G - 0	Spare	No	
H - 1	Multi cues	Enable	When Enabled a memory may be assigned to more than one playback source simultaneously. When Disabled a memory can be assigned to only 1 playback device at a time.
I - 0	USA system	0 - No 1- Yes	Use [•] to enter intensity assignments. Example: **[CHAN #] [@] [7]** for 70% 4 **[•]** 5 for 45%. It is necessary to press **[=]** when storing a memory. Example: **[CHAN #] [@] [7] [=] [#] [STORE]** USA system set to *yes* permits these key sequences: **[CHAN #] [@] [70]** **[CHAN #] [@] [85] [MEM #] [STORE]**
J - 0	Patch 999	0 –No 1 - Yes	The console ignores /references Patch 999. (see appendix D)
K - 0	Spare	No	
L - 0	Old DMX Timing	0 - No 1 - Yes	Toggle between Enable old DMX protocol timing or Disable. When disabled the system uses new DMX protocol timing.
M - 0	DMX Input	Disable	To use DMX input this bit must be enabled and the number of DMX input must be assigned in the previous option (system configuration). The system cannot be configured for both SMPTE External and DMX Input at the same time because they use the same connector.
N - 0	Spare	No	
O - 0	SMPTE External	0- Disabled 1 -Enabled	When using DMX input. When using an external SMPTE generator. The system cannot be configured for both SMPTE External and DMX Input at the same time.
P - 0	Spare	No	
Q - 1	MIDI	Enable	Toggle to 0 to disable the MIDI function. When disabled the MIDI menu does not appear in the menu list.

Bit	Function	Toggles	Description
			Toggle to 1 to enable the MIDI function
R - 0	Spare	No	
S - 0	Spare	No	
T - 0	Spare	No	
U - 1	Remote Designer	Enable	Toggle to 0 – Communication with the Remote Designer is disabled. Toggle to 1– Communication with the Remote Designer is enabled.
V - 0	Spare	No	
W - 0	Protect all	No	Toggle to 0 – All configuration options require a passcode for Access to F3 Control Capacity is protected by a pass code. Toggle to 1 – Only Special Functions and Special Numbers require a pass code for access.
X - 0	Force 360k. disk	No	

Special Numbers

This area of the system configuration contains the following data:

- Maximum number of frames for scrollers. (0-32)
- Keyboard language -

  0 English

  1 Swedish

  2 Hungarian

  3 French

  4 German
- SMPTE frames per second (up to 50)
- Spare
- Type of communication -

  0 DMX

  1 CMX + DMX (CMX is not available)

  2 C105

  3 C105 + DMX

System Parameters

General system configuration options are also found in the System Parameters menu, menu 8.

The upper System Parameters display shows the system type, Photon, and control capacity configuration, which includes:

- The current show file (if any). The display includes the show file number, text, date and time of recording.
- The current software version
- Current remaining memory in %
- The diskette capacity
- Number of channels and dimmers controlled by the system
- Number of scrollers controlled by the system

Operator definable parameters

The lower part of the display shows parameters whose default may be operator defined. Some of the items are toggles and some require a numeric entry.

To redefine these parameters:

Keypresses	**Results/Comments**
1. Use the arrow keys (**F2, F3, F4**) to move the cursor and highlight the required item.	
2. Press **F1 Enter**	A prompt, such as Set *Parameter To:* is displayed.

The definable parameters are:

Item	What it does
Default memory time	The default fade time that is automatically assigned to memories. The Default Memory Time is referenced when fading grp assignments using the Go Controller function.
Default fade time	The time it will take the stage output to fade out RESET has been pressed.
Midi i/o chan	Assign the MIDI channel where Photon receives/transmits instructions if the optional MIDI hardware is installed.
Midi sync out channel	Assign the channel that transmits for MIDI synch.
G.M. Blackout	Enable or disable the General Master blackout key.
Non-dim level	Set the level at which a dimmer (set for a non-dim curve) will jump to full.
On key	Set the level at which the **ON** key operates.
Time of day	Set the system's real time clock.
Date	Set the date.

Item	What it does
Scrlr jump on fade	When toggled to Yes, Scrollers jump to the incoming value at the beginning of the crossfade. When toggled to No, Scrollers fade to the incoming value.
Wire/less Designer	Enable or disable the use of the designer box.
Store to first active	Determine how the system handles the STORE STORE function. When toggled to Yes, the editor is stored to the first active playback fader. The system first looks at A/B and then the controllers starting from controller 1. When toggled to No, any channel intensity modifications will store to any and all relevant outputs.

Print menu screen

The print option (**F6**) operates as print screen. It is recommended to print for documentation, as it contains important information such as the system configuration.

CHAPTER 17
CHANNEL AND SCROLLER PATCHING

Included in this chapter:

The Channel Patch

- Patching dimmers to channels
- Patching dimmers to scrollers
- Patching channels to dimmers
- Clearing patch assignments
- Restoring the default patch
- Proportional patching
- Exchanging dimmers
- Assigning dimmer curves
- Disabling General Master control
- Examining soft patch assignments
- View free dimmers

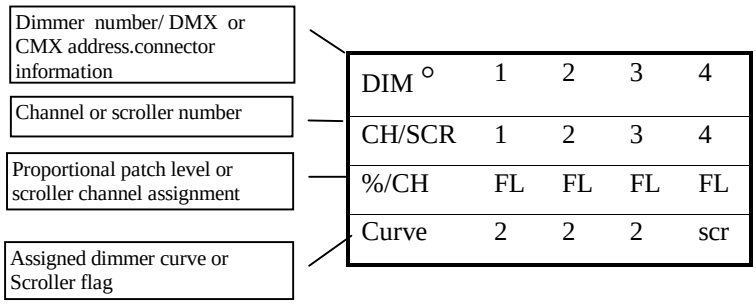
The Scroller Patch

- Selecting a scroller
- Patching scrollers to control channels
- Patching DMX addresses to scrollers
- Defining a dark gel frame
- Changing the number of frames
- Setting up frames
- Copying the scroller setup

The Channel Patch

Photon controls up to 512 channels, which may be soft-patched. The Channel Patch menu, offering many options for dimmer and channel definition, is menu number 1.

The patch table consists of 4 lines per row:


Dimmer number/ DMX or CMX address.connector information
Channel or scroller number
Proportional patch level or scroller channel assignment
Assigned dimmer curve or Scroller flag
DIM ° 1 2 3 4
CH/SCR 1 2 3 4
%/CH FL FL FL FL
Curve 2 2 2 scr

The Default Patch is 1 to 1:
Each channel is patched to its corresponding dimmer
Curve 2
The proportional patch set to FL.

The color code key for the Channel Patch is:

Dimmer number under G.M. control	Black
Dimmer number not under G.M. control	Yellow
Default channel	Blue
Soft patch channel	Red on a white field
Scroller assignment - DMX address to scroller	▪ 1st row –yellow – GM control disabled. ▪ 2nd row – the scroller number appears in a different font in red on a white field. ▪ 3rd row – control channel number. ▪ 4th row - *scr* appears in blue, flagging this assignment as a scroller assignment.
2 Parameter control channel (dimmer and scroller)	An *s*, red on a white field, appears next to the curve number.
Curves	curve 1 S-curve: red curve 2 linear: brown (default curve) curve 3 non-dim: violet curve 4 park: white programmable curve 5: yellow programmable curve 6: green programmable curve 7: violet programmable curve 8: blue proportional patch: violet on a yellow field

Patching dimmers to channels

A single dimmer or a range of dimmers can be patched to a single control channel.

Keypresses	Results/Comments
1. Press **F1 Assign Dimmers**	
2. Select dimmer number.	This can be a single number or the first of a range of dimmers.
3. Press **F1 Thru Dimmer** or **[→]**	This allows a range selection. **F2 & Dimmer** is used to select non-sequential dimmers.
4. Select the final dimmer number in the range.	
5. Press **F3 To Channel**	Photon prompts for a channel number.
6. Enter the channel number on the numeric keypad.	
7. Press **F1 Store**	The soft patch channel number appears in red on a white field.

Patching dimmers to scrollers

Scrollers must be assigned DMX addresses in the Channel Patch menu. The assignments must be identical with the local DMX address on the scroller. The number of scrollers in the system is determined by the number of scrollers defined in the System Configuration (Service Tools/Config System/F3 Control Capacity).

Dimmers assigned scrollers appear in yellow. This means that these DMX channels are not under General Master control. Scroller assignments are automatically removed from General Master control to avoid mishaps.

Keypresses	Results/Comments
1. Press **F1 Assign Dimmers**	Photon prompts for a dimmer number.
2. Select dimmer number.	This can be a single number or the first of a range of dimmers.
3. Press **F1 Thru Dimmer**	This allows selecting a range of dimmers. **F2 & Dimmer** is used to select non-sequential dimmers.
4. Select the final dimmer number in the range.	
5. Press **F4 To Scroller**	The display jumps to the Scroller Patch menu. The dimmer/s (DMX addresses) selected must correspond to the scroller's local DMX address.
6. Enter the scroller number on the numeric keypad.	
7. Press **F1 Store**	The display jumps back to the Channel Patch menu. The DMX to scroller assignments are stored and displayed in the patch table in the Channel Patch menu and the Scroller menu.

More than one DMX address can be assigned to a scroller; thus 1 channel controls more than 1 scroller.

Example: 4 scrollers, with local DMX addresses 201 - 204 are mounted on PAR cans. The PAR cans are patched to control channel 56. Assign DMX addresses 201 -204 to scroller 1 and then patch scroller 1 to control channel 56. Channel 56 now controls the dimmers of the 4 PAR cans and their scrollers. In this set up, the 4 scrollers are always at the same frame.

Patching channels to dimmers

You can assign a range of channels to a range of dimmers or a single channel to one or more dimmers.

Example: Soft patch a channel to a dimmer.

Keypresses	**Results/Comments**
1. Press **F2 Assign Channels**	Photon prompts for a channel number.
2. Enter the channel number on the keypad.	
3. Press **F1 To Dimmer #**	Photon prompts for a dimmer number.
4. Enter the dimmer number on the numeric keypad.	
5. Press **F1 Store**	The Channel assignment is displayed in red on a white field under the dimmer number.

Example: Soft patch channel 200 to dimmers 20, 30, and 40.

Keypresses	**Results/Comments**
1. Press **F2 Assign Channels**	Photon prompts for a channel number.
2. Enter **200** on the numeric keypad.	
3. Press **F1 To Dimmer #**	Photon prompts for a dimmer number.
4. Enter **20** on the numeric keypad.	
5. Press **F2 Thru Dimmer #**	Photon prompts for a dimmer number.
6. Enter **30** on the numeric keypad.	
7. Press **F2 Thru Dimmer #**	Photon prompts for a dimmer number.
8. Enter **40** on the numeric keypad.	
9. Press **F1 Store**	Channel 200 in red on a white field appears under dimmer numbers 20, 30, and 40.

Example: Assign channels 73 - 75 to dimmers 120 - 122 respectively.

Keypresses	Results/Comments
1. Press **F2 Assign Channels**	The system prompts for a channel number.
2. Enter **73** on the numeric keypad.	
3. Press **F1 Thru Channel**	The system prompts for a channel number.
4. Enter the last channel in the range – channel **75**.	
5. Press **F1 To Dimmer #**	
6. Enter the first dimmer of the range - **120**.	
7. Press **F1 Store**	Channel 73 is assigned to dimmer 120, channel 74 to dimmer 121, channel 75 assigned to dimmer 122.

Clearing patch assignments

Channel or dimmer patch assignments can be cleared and their output disabled.

Dimmmer numbers for cleared assignments appear in yellow.

Keypresses	Results/Comments
1. Press **F3 Clear Assign**	
2. Press **F1 Channels** or Press **F2 Dim**	Photon prompts for channel or dimmer numbers.
3. Enter the channel/s or dimmers numbers. There are F Key options for group and range selections.	
4. Press **F3 Store**	Now the channel/dimmer is "unpatched". The dimmers appear in yellow. Assignments are restored by repatching the channels and dimmers.

Restoring the default patch

The default Channel Patch is a 1 to 1 channel to dimmer assignment.

You can restore the default assignments to the entire patch table, single dimmers, or a range of dimmers.

The example below demonstrates restoration of the entire patch table.

Keypresses	Results/Comments
1. Press **F4 Default (1 to 1)**	
2. Press **F1 All Patches**	Photon asks *Are You Sure???*
3. Press **F1 Yes**	The entire patch table reverts to 1 to 1 Patch assignments.

Proportional patching

This function allows you to limit the 100% output of a specific dimmer. This is used for lamps that you do not want to operate above a certain level.

Example: Proportional patching is handy for balancing a cyclorama wash. Adjust the proportional output of the dimmers used for the wash and you will not waste valuable plotting time fiddling the levels of units for a uniform wash. .

Keypresses	Results/Comments
1. Press **F5 Propor Patch**	The system prompts for a dimmer number.
2. Enter dimmer number.	More than 1 dimmer may be selected.
3. Use the wheel or **[@]** and the keypad to assign the maximum output level of the selected dimmer/s.	
4. Press **F1 Store**	The maximum output level appears in violet on a yellow field in the 3rd row of the patch.
5. Press **F6 Restart** to return to the main channel Patch menu.	

Exchanging dimmers

Exchanging dimmers swaps the dimmers' channel assignments. The Exchange Dimmer function is on the second page of the Channel Patch menu.

Example: Dimmer 89 is patched to channel 89 and dimmer 90 is patched to channel 56. Exchanging the dimmers assigns channel 89 to dimmer 90 and channel 56 to dimmer 89.

Keypresses	**Results/Comments**
1. Press **F5 Exchange Dimmers**	Photon prompts: *Exchange Dimmer #:*
2. Enter the dimmer number in response to the prompt, in this example, **89**.	
3. Press **F1 With Dimmer**	
4. Enter the dimmer number in response to the prompt, in this example, **90**.	Photon prompts for a dimmer number.
5. Press **F1 Store**	The result is displayed like all other soft patches.

Assigning dimmer curves

There are 4 standard dimmer curves:

1. S curve
2. Linear
3. Non-Dim - A dimmer set for non-dim jumps to full when the dimmer level reaches 50%. There is no dimmer response between 0% and 49%. This is useful for motors and strobes. The Non-Dim level can be changed in the System Parameters menu.
4. Park - is used for instruments that are always on, such as work lights or smoke machines. Park is always at 100%.

In addition to the four fixed dimmer curves, there are 4 programmable curves (curves 5 - 8). Use the programmable curves for smooth operation of mechanical dimmers, flourescent lights, and returning wayward dimmers to a linear format.

The Curve option is on the second page of the Channel Patch menu.

Assigning a standard curve

Keypresses	**Results/Comments**
1. Press **F2 Curve**	Photon prompts *Assign curve to dimmer #*
2. Enter the dimmer number on the numeric keypad.	A range of dimmers or a group of non-sequential dimmers can be selected.
3. Press **F3 Select Curve**	The F keys display the curve options.
4. Select the desired curve.	The curve assignment appears in the 4th row of the Channel Patch table.

Programming custom curves

Curves may be programmed either by selecting steps and using the wheel to set the step's level or using controllers 1 – 10 to set up the curve.

using the controllers

Keypresses	Results/Comments
1. Press **F2 Curve**	The system prompts for a dimmer number.
2. Enter the dimmer number/s for curve assignment.	
3. Press **F4 Program Curve**	The graphs for curves 5 - 8 are displayed. The system prompts for the curve number.
4. Enter the curve number on the numeric keypad (5 – 8).	
5. Press **F1 Setup From Pot**	This selection bumps you to the editor, affording the possibility of setting up the curve and simultaneously checking it by assigning the channel to controllers 11 → 20 or the crossfader (see below).
6. Press **[MENU]**	Returns to the Curve menu.
7. Press **F1 Store Curve**	Store the new curve parameters and concludes the operation.
8. Press **F6 Restart** to return to the main Channel Patch menu.	

Using the wheel

Keypresses	Results/Comments
1. Press **F2 Curve**	The system prompts for a dimmer number. More than one dimmer may be dealt with at a time.
2. Enter the dimmer number/s for curve assignment.	
3. Press **F4 Program Curve**	The graphs for curves 5 - 8 are displayed. The system prompts for the curve number.
4. Enter the curve number on the numeric keypad.	
5. Press **F2 Set Up Steps**	
6. Use the Dimmer wheel to set the level for each step	
7. Press **F4** or **F5** to go to the next or previous step and repeat Step 6 until all steps have level assignments.	
8. Press **F2 Store Curve**	

Testing the curve

You can test the programmed curve before storing it. The test procedure depends on whether you have used the Set Up Steps or set up using controllers.

Testing a curve programmed with controllers

Pressing **F1 Set Up from Pot** bumped you to the editor. While still in the editor you can test the dimmer curve.

Keypresses

1. After setting up the step levels, assign the dimmer's channel to a controller in the lower bank (controllers 11 → 20).
2. Fade the assignment either manually or using a Go command.
3. Press **[MENU]** to return to the Channel patch menu.
4. If the curve is satisfactory, press **F1 Store**. If the curve is not satisfactory, reprogram and test again.

Testing a curve programmed using the wheel or editor

If you have used the wheel to program the steps, use the Start Sample option.

Keypresses	Results/Comments
1. Assign levels to the steps using the wheel and/or editor.	
2. Press **F1 Start Sample**	Photon goes to the editor and executes a live fade to the dimmer's channel.
3. Press **[MENU]**	Return to the Curve menu.
4. If the curve is satisfactory, press **F1 Store Curve**. If you are not satisfied, press **F2 Setup Steps** to re-edit.	

Disabling General Master control

Dimmers can be removed from General Master control. Disable GM control for motors, smoke machines, and other special effects. This option appears on the third page of the Channel Patch menu.

Keypresses	Results/Comments
1. Press **F1 General Master**	The system prompts you to enter the dimmer number.
2. Enter number. A range of dimmers or a group of non-sequential dimmers can be selected.	
3. Press **F5 Disable G.M.**	Dimmer/s not under GM control are displayed in yellow.

Enabling General master control

Dimmers that were removed from General Master control can be re-instated

Keypresses	Results/Comments
1. Press **F1 General Master**	The system prompts for the dimmer number.
2. Enter the dimmer number.	More than one dimmer can be selected.
3. Press **F4 Enable G.M.**	The selected dimmer/s are displayed in black and are fully responsive to changes in the General Master level.

Examining soft patch assignments

You can isolate individual channels, dimmer, and scroller patch assignments for examination.

The result of a channel exam might look like this:

DIM-	7	107	177
CH/SCR	107	107	107
% CH	FL	FL	FL
CURVE	2	2	2

The result of a dimmer exam might look like this:

Dimmer…...…….107	Free	Status
DMX … ……...…… .107		
Proportional…….FL		
Curve……..….2	Linear	
Channel……...107		
Scroller…….…….		
G.M……...….Active		

Example: Examine the soft patch assignments for channel 100.

Keypresses	Results/Comments
1. Press **F1 Exam**	
2. Press **F1 Channel**	You are prompted for the channel number.
3. Enter **100** on the keypad.	The dimmers patched to channel 100 are displayed.
4. Press **F1 Exam**	
5. Press **[+]** or **[F1]** and **[–]** or **[F2]** to view the next or previous channel.	

Viewing free dimmers

This function displays the free dimmers; dimmers not used in memories.

Press **F4 Free Dimmers**

The color code key for this display is:

Status	**Color**
Cleared dimmer assignments	Blue on a gray field
Dimmers assigned to scrollers and channels that are used in memories	Black on a white field
Free (unused dimmers)	Black on a yellow field

The Scroller Patch

The Scroller Patch menu, menu 20, provides tools for optimizing the scroller set up and quick editing selection.

Patching scrollers to channels defines the luminaire mounted with a scroller as two-parameter device; the dimmer of the fixture is one parameter and the scroller the second parameter. This allows you, during editing, to address the dimmer and the scroller using the same control channel.

The functions for scroller management are:

- Patching scrollers to control channels.
- Patch scrollers to DMX address.
- Fine adjustment of the frame position.
- Designating a frame as a "dark gel". The “dark gel” is kept in constant movement to reduce gel burn in dark filters.
- The number of frames can be customized.
- Scroller set ups can be copied from one scroller to another.
- Clear Assignments.
- Assign default DMX addresses.

The scroller patch table displays all the information pertinent to the scrollers.

CHN	SCL	DMX	# F	1	2	3	4
address the scroller by this channel	the scroller number	the scrollers’ DMX addresses*	the number of frames in this scroller	the frame value**	the frame value	the frame value	the frame value

* Scrollers are assigned DMX addresses in the Channel Patch menu, Assign Dimmer option. If more than one dimmer is assigned to a scroller the assignment is represented by a plus sign (+) that appears in the DMX address column of the scroller table. This option is also available in the Scroller Patch. If selected you are immediately bumped to the Channel Patch.

** The default for the number of frames is determined by the number of frames defined in Service Tools/Sys Config/Special Numbers. The number of frames can be modified per scroller in the Scroller Patch menu. The frame values default to a 0 - 100 scale based on the number of frames.
The monitor displays up to 20 frames on page 1. If the system is configured for more than 20 frames page the Scroller menu display by pressing
F5 Display →. .

Most functions in this menu require a channel assignment for the scroller. If the scroller does not have a channel assignment the message *Unassigned Scroller* is displayed.

➢Note

If the console is not configured for scrollers, the Scroller menu does not appear.

Selecting a scroller

You must enter the number of the scroller at the prompt.

Enter the scroller number on the numeric keypad. It is displayed in yellow after the prompt *Scroller #:*

Or

Press **+** or **-** to move the cursor through the Scroller Patch Table. The scroller number is displayed next to the prompt.

Clear channel to scroller assignments with **F3 Clear Assign**.

Patching scrollers to control channels

Patch a scroller to the channel number of its corresponding lighting unit, thus creating a two-parameter channel: dimmer and scroller.

Example: Scroller 1 is mounted on a 5 kW. lighting unit controlled by channel 100. Patching scroller 1 to control channel 100 allows you to access the dimmer of the fixture and the scroller using only one channel selection.

Keypresses	**Results/Comments**
1. Select scroller 1	
2. Press **F1 Assign To Chan**	The scroller number is highlighted in the patch table. The system prompts: *Assign to channel #.*
3. Enter 100 using the keypad.	
4. Press **F1 Store**	The channel number is displayed in the left column. The scroller list arranges itself in numerical order by control channels.

Patching a range of channels to a range of scrollers

Example: assign scrollers 1 – 16 to channels 101 to 116.

Keypresses	**Results/Comments**
1. Select scroller 1	
2. Press **F1 Assign To Chan**	The scroller number is highlighted in the patch table. The system prompts: *Assign to channel #.*
3. Enter 101 using the keypad.	
4. Press **F2 Thru Channel**	You are prompted for a channel number.
5. Enter 116 using the numeric keypad.	
6. Press **F1 Store**	The channels 101 – 116 are assigned consecutively to scrollers 1 – 16.

Patching DMX addresses to scrollers

Pressing **F2 Assign to Dimmer** bumps you to the Channel Patch menu. For instructions on assigning DMX addresses to scrollers see Patching dimmers to scrollers, page 17-3. To assign a range of addresses to a range of scrollers you must start from the Channel Patch menu.

You can choose to assign dimmers to scrollers using the Default Dimmer option (**F4**). The default dimmers are always the last dimmers in the system.

Defining a dark gel frame

The dark gel function keeps two consecutive color frames in motion as long as the dimmer of the lighting unit is working at more than 10% intensity.

This saves on gel burn when using very dark colors, as no single area of the gel is constantly exposed to the heat of the lamp. When assembling the gel ribbon cut a double length of dark colors.

Keypresses	Results/Comments
1. Select the scroller	
2. Press **F4 On/Off Dark Gel**	Prompt line reads: *Set to dark gel from frame #*
3. Select the first the dark gel frame on the numeric keypad or **F4** and **F5** or press **F4** or **F5** until the cursor is on the frame.	The system automatically recognizes the next gel frame as the continuation of the dark gel.
4. Press **F1 On**	The dark gel function is now activated. A small, red 'd' appears between the two frame numbers in the frame table.

Canceling a dark gel assignment

To cancel a dark gel assignment, follow the same procedure described above, selecting **F2 Off**.

The little 'd' denoting dark gel disappears from the frame table.

Changing the number of frames

Photon offers the option of changing the number of frames for individual scrollers.

The default is the maximum number of frames as defined in Service Tools, system configuration, special numbers. A smaller number of frames can be defined per scroller in the Scroller menu.

Keypresses	Results/Comments
1. Select the scroller.	
2. Press **F1 No. of Frames**	The system prompts for the number of frames.
3. Enter the number of frames on the keypad	
4. Press **F1 Store**	The system automatically adjusts the frame increments to correspond with the number of frames.

Setting up frames

It may be necessary to fine-tune the frame increments. When this function is selected, the unit's dimmer is automatically turned on at 75%.

Keypresses	Results/Comments
1. Select the scroller	
2. Press **F1 Setup Frame**	The prompt *Setup frame #:* appears. The dimmer goes on.
3. Select the frame on the numeric keypad or press **F4** or **F5** until the cursor is on the frame.	
4. Press **F1 Enter**	The prompt *@ % (Use scrlr wheel or numeric pad)* instructs you how to adjust the frame.
5. Press **F1 Store Frame**	Photon asks for confirmation.
6. Press **F1 Store Frame**	The cursor jumps to the next frame.

Storing the frame set up with an offset

If the offset of the gel ribbon is the same for all of the frames, you can store the adjustment with an identical offset for all of the gel frames. If you have increased the frame value, storing with off set assigns the identical compensation to all the subsequent frames. If you have decreased the frame value, this selection stores the identical compensation to all previous frames.

Press **F2 Store Fr W/Offset**.

➢Note

Scroller frame assignments in memories are automatically adjusted following any change in the frame set up.

Copying the scroller setup

After setting up a scroller to your specifications, the information may be copied to another scroller or a range of scrollers.

Keypresses	Results/Comments
1. Select the scroller you want to copy	
2. Press **F2 Copy To Scroller**	Photon prompts for the scroller number you are copying to.
3. Enter the scroller number on the numeric keypad	
4. Press **F1 store**	The number of frames, frame value modification, and dark gel assignments are copied to the selected scroller.

CHAPTER 18
MIDI IN/OUT

This chapter includes:

Configuring the System for MIDI

- Configuring for MIDI in Service Tools
- Defining the MIDI channel in System Parameters

Enabling/Disabling MIDI

- Turning MIDI on
- Turning MIDI off

The MIDI menu

- Enabling and disabling keys and controllers
- Editing MIDI data for keys and controllers

MIDI Macro

MIDI Sync

- Setting up MIDI Sync in the master console
- Setting up MIDI sync in the slave console
- Enabling/disabling midi sync

Standard MIDI codes

Configuring the System for MIDI

To configure Photon for MIDI communication, you must enable bit Q Sys in Service Tools/ Config Sys /Special Functions. You must also define the MIDI communication channel in the System Parameters menu.

Configuring for MIDI in Service Tools

Keypresses	Results/Comments
1. Go to Service Tools.	
2. Press **F3 Config Sys**.	
3. Enter the password.	
4. Press **F4 Special Functions**	
5. Press the arrow keys until the cursor is on Bit Q MIDI	
6. Press **F1 Toggle**	Bit Q is now toggled to *Enable*
7. Press **F6 Enter & Exit**	The main Config Sys menu is displayed. A confirmation request is displayed.
8. Press **F6 Store Configuration**	
9. Turn off Photon and switch it back on.	Photon now boots up. After major changes in the system configuration it is necessary to power down and power up again.
10. Press **F1 Cold Start**	The system exits Service Tools and comes up in editor mode.

Defining the MIDI channel in System Parameters

Keypresses	Results/Comments
1. Press **MENU**	The menu list is displayed.
2. Press **8 ENTER**	The System Parameters menu is on view.
3. Use the arrow keys to move the cursor, highlighting **MIDI i/o channel**.	
4. Press **F1 Enter**	
5. Enter the MIDI communication channel (1 - 16) on the numeric keypad.	
6. Press **F1 Store**	

Enabling/Disabling MIDI

The console transmits or receives MIDI commands, when MIDI is enabled. When MIDI is disabled, the console ignores all MIDI communication.

A flag at the top center of the display shows the MIDI status.

Turning MIDI on

Keypresses	Results/Comments
1. Go to the MIDI menu.	
2. Press **F6 More** and **F3 MIDI on**	
3. Exit the menu.	The MIDI flag, appearing at the top of the display reads: *I/O On*.

Turning MIDI off

Keypresses	Results/Comments
1. Go to the MIDI menu.	
2. Press **F6 More** and **F4 MIDI off**	
3. Exit the menu.	The MIDI flag, appearing at the top of the display reads: *I/O On*.

The MIDI Menu

When receiving MIDI commands, an exterior instrument sending MIDI signals initiates console operations. The exterior instrument can be a synthesizer or a PC with a music program or any other device that communicates via MIDI.

MIDI transmission is often used to control other lighting consoles.

The MIDI In/Out menu, menu 23, offers the options of enabling or disabling all or part of the input keys, output keys, input controllers, and output controllers. All the keys and controllers are defined as note off, note on, or control change responsive. The default MIDI codes can be edited.

➢Note

If the MIDI function has not been Enabled in Service Tools (see Configuring the System for MIDI, page 18-2), the MIDI menu does not appear in the menu list.

Enabling and disabling keys and controllers

A red asterisk next to a key denotes that it is enabled and responsive to MIDI commands.

It is recommended to enable only those keys that you will actually use.

Keypresses	Results/Comments
1. Press **F1 Input Keys/ F2 Output Keys** or **F3 Input Cntrlrs/F4 Output Cntrlrs**	Select input keys. A list of all of the keys in the system and their MIDI command codes is displayed. There are 2 pages of MIDI codes. Select input controllers. A list of playback devices and their MIDI command codes are displayed.
2. Use the arrow keys on the console to highlight the key or playback device.	
3. Press **F1 Enter**	The key name is highlighted in red.
4. Press **F2** ↑	An asterisk (*) is inserted in front of the key name, denoting that this key is enabled and responds when an appropriate MIDI command is received.
5. Press **F1 Store**	

To disable keys follow the same procedure. When disabled there is no asterisk in front of the key name.

The keys that are enabled as default are:

[GO]	**[HOLD]**
[BACK]	**[GO TO]**
[SEQ]	**[AUTO ON]**

You can also enable or disable all of the keys.

Keypresses	Results/Comments
1. Go to the MIDI menu.	
2. Press **F6 More** and **F1 Enable all** or **F2 Disable all**	
3. Select Input keys, Output keys, Input controllers, or Output controllers.	A red asterisk appears next to all of the keys in the MIDI list.

Editing MIDI data for keys and controllers

You can edit the message and data assignments.

The input and output key display has 3 columns:
1. Key
2. Message - the message information can be assigned as *note on*, *note off*, or *control change*.
3. Data - the MIDI code in the data column can be changed.

The input and output controllers' display has 2 columns:
1. Sys - indicating the playback device.
2. MIDI - the MIDI code assigned to the playback device.

The message for input/output controllers is **always** control change.

If control change is assigned to the input/output keys, care must be taken to assure that there is no duplication of the MIDI code. Example: if input/output controller A/B is programmed as MIDI 20, do not program input/output key Hold A/B as control change, data 20.

The instructions for editing MIDI information in the MIDI menu uses input keys. The procedure is the same for output keys, input controllers, and output controllers.

Keypresses	**Results/Comments**
1. Press **F1 Input Keys**	Select the input keys.
2. On the console panel, press the key that you want to edit. The cursor automatically jumps to that key in the MIDI table.	
3. Press **F1 Enter**	You now have access to the selected entry.
4. Press **F5** → to select the Message or Data column.	
5. Press **F2** ↑ to change the Message assignment. Enter a number on the numeric keypad for the Data assignment.	Use this key to toggle to the required selection: *note on*, *note off*, *control change*.
6. Press **F1 Store**	

MIDI Macro

The MIDI Macro function allows you to program a macro using MIDI transmission input. The macro collects the MIDI codes received from a MIDI transmitting source.

Keypresses	Results/Comments
1. Go to the MIDI menu.	
2. Press **F5 MIDI Macro**	This selection transports you to the Macro menu.
3. Press **F1 Create Macro**	The system prompts for a macro number.
4. Transmit MIDI commands to console	This transmission should contain no more than 16 commands.
5. Press **F1 Store**	Store the macro. The macro appears in blue and is a collection of MIDI codes.

MIDI Sync

MIDI sync is an additional MIDI function that serves to synchronize 2 consoles, one console being the master and the other the slave.

The synchronization works via Go commands to the A/B crossfader.

The synchronization is carried out by a MIDI transmission, to the slave console, of the keys **[MEMORY] [#] [TIME] [GOTO]** whenever a Go command occurs on the A/B crossfader, The # is the number of the incoming memory.

The Go commands include:
- Pressing **[GO]**
- Pressing **[GO TO]**
- Manually moving the fader.

To use the MIDI sync function, you must:
- Connect the consoles as Master/Slave via MIDI.
- Assign the MIDI Sync channel in the System Parameters menu in the master and the identical channel as the MIDI I/O channel in the slave console.
- Enable the MIDI Sync function in the MIDI menu on both consoles.

Setting up MIDI Sync in the master console

Since the MIDI sync function and the regular MIDI transmission can operate simultaneously, a unique channel must be set for MIDI I/O.

The default assignment for the MIDI Sync channel is 2. The default assignment for MIDI I/O is 1.

Keypresses

1. Configure the system for MIDI as described above.
2. Go to the System Parameters menu.
3. Set a channel for *MIDI sync out*.
4. Optional - Set a different channel for *MIDI I/O*.

Setting up MIDI sync in the slave console

If the receiving console is not a Compulite console, the following keys on the receiving console must be programmed with the identical MIDI codes as in the MIDI menu of Photon:

- **MEMORY**
- digits 0 - 9
- decimal point (for numbers like 2.8, etc.)
- **TIME**
- **GO** (A/B)
- **GOTO** (A/B).

Keypresses	**Results/Comments**
1. In the MIDI menu, enable all of the Input Keys.	
2. Go to the System Parameters menu.	
3. Set a channel for *MIDI I/O*.	The MIDI I/O channel, of the slave console, must be set to the same channel as the MIDI Sync channel in the master console.

Enabling/disabling MIDI Sync

The MIDI Sync function can be enabled or disabled at anytime. This is done in the MIDI menu. MIDI Sync is found on the third page in the MIDI menu.

Press **F1 MIDI SYNC ON** to enable MIDI sync.

Press **F2 MIDI SYNC OFF** to disable MIDI sync.

The MIDI Sync status is displayed in the center at the top of the monitor.

Standard MIDI Codes

Decimal	Hex	Decimal	Hex	Decimal	Hex	Decimal	Hex
0	00	16	10	32	20	48	30
1	01	17	11	33	21	49	31
2	02	18	12	34	22	50	32
3	03	19	13	35	23	51	33
4	04	20	14	36	24	52	34
5	05	21	15	37	25	53	35
6	06	22	16	38	26	54	36
7	07	23	17	39	27	55	37
8	08	24	18	40	28	56	38
9	09	25	19	41	29	57	39
10	0A	26	1A	42	2A	58	3A
11	0B	27	1B	43	2B	59	3B
12	0C	28	1C	44	2C	60	3C
13	0D	29	1D	45	2D	61	3D
14	0E	30	1E	46	2E	62	3E
15	0F	31	1F	47	2F	63	3F
64	40	80	50	96	60	112	70
65	41	81	51	97	61	113	71
66	42	82	52	98	62	114	72
67	43	83	53	99	63	115	73
68	44	84	54	100	64	116	74
69	45	85	55	101	65	117	75
70	46	86	56	102	66	118	76
71	47	87	57	103	67	119	77
72	48	88	58	104	68	120	78
73	49	89	59	105	69	121	79
74	4A	90	5A	106	6A	122	7A
75	4B	91	5B	107	6B	123	7B
76	4C	92	5C	108	6C	124	7C
77	4D	93	5D	109	6D	125	7D
78	4E	94	5E	110	6E	126	7E
79	4F	95	5F	111	6F	127	7F

MIDI codes are organized according to the 12 octaves on the piano.

Note	Name	Note	Name	Note	Name	Note	Name
C-2	:00	C-1	:36	C-4	:72	C-7	:108
Db-2	:01	Db-1	:37	Db-4	:73	Db-7	:109
D-2	:02	D-1	:38	D-4	:74	D-7	:110
Eb-2	:03	Eb-1	:39	Eb-4	:75	Eb-7	:111
E-2	:04	E-1	:40	E-4	:76	E-7	:112
F-2	:05	F-1	:41	F-4	:77	F-7	:113
Gb-2	:06	Gb-1	:42	Gb-4	:78	Gb-7	:114
G-2	:07	G-1	:43	G-4	:79	G-7	:115
Ab-2	:08	Ab-1	:44	Ab-4	:80	Ab-7	:116
A-2	:09	A-1	:45	A-4	:81	A-7	:117
Bb-2	:10	Bb-1	:46	Bb-4	:82	Bb-7	:118
B-2	:11	B-1	:47	B-4	:83	B-7	:119
C-1	:12	C-2	:48	C-5	:84	C-8	:120
Db-1	:13	Db-2	:49	Db-5	:85	Db-8	:121
D-1	:14	D-2	:50	D-5	:86	D-8	:122
Eb-1	:15	Eb-2	:51	Eb-5	:87	Eb-8	:123
E-1	:16	E-2	:52	E-5	:88	E-8	:124
F-1	:17	F-2	:53	F-5	:89	F-8	:125
Gb-1	:18	Gb-2	:54	Gb-5	:80	Gb-8	:126
G-1	:19	G-2	:55	G-5	:91	G-8	:127
Ab-1	:20	Ab-2	:56	Ab-5	:92		
A-1	:21	A-2	:57	A-5	:93		
Bb-1	:22	Bb-2	:58	Bb-5	:94		
B-1	:23	B-2	:59	B-5	:95		
C-0	:24	C-3	:60	C-6	:96		
Db-0	:25	Db-3	:61	Db-6	:97		
D-0	:26	D-3	:62	D-6	:98		
Eb-0	:27	Eb-3	:63	Eb-6	:99		
E-0	:28	E-3	:64	E-6	:100		
F-0	:29	F-3	:65	F-6	:101		
Gb-0	:30	Gb-3	:66	Gb-6	:102		
G-0	:31	G-3	:67	G-6	:103		
Ab-0	:32	Ab-3	:68	Ab-6	:104		
A-0	:33	A-3	:69	A-6	:105		
Bb-0	:34	Bb-3	:70	Bb-6	:106		
B-0	:35	B-3	:71	B-6	:107		

CHAPTER 19
SMPTE

This chapter includes:

Configuring the system for SMPTE

- Configuring the number of frames

Teaching SMPTE Time Codes

- Starting at a selected event
- Exiting the teach function
- Manual assignment and editing the SMPTE time code

Playback with SMPTE

- Exiting SMPTE playback

Configuring for SMPTE

SMPTE can be transmitted from an external SMPTE generator directly to the console. In this case the SMPTE generator plugs directly into the PL connector on the back panel. This leaves the SMPTE/DMX Input connector free to receive DMX Input.

The internal SMPTE is always Enabled.

Configuring the SMPTE/DMX Input connector

NOVRAM bit O - SMPTE External defines the SMPTE/DMX In connector.

Toggle to 1 (*Enabled*) to use the connector for external SMPTE communication.

Toggle to 0 (*Disabled*) to use the connector for DMX Input. Important! When using DMX Input bit M - DMX Input. Must be Enabled.

If you are using an SMPTE Converter, it must be plugged in at the SMPTE/DMX Input converter. The Compulite SMPTE converter receives SMPTE input and transmits DMX 512 (on four channels – hours, minutes, seconds, frames) to the lighting desk.

The converter works to industry standard: 24 frames per second of audiotape, 30 or 50 frames per second for VTR, in drop or non-drop mode. The SMPTE converter automatically identifies the type of transmission it is receiving, making any further adjustments unnecessary.

Keypresses	**Results/Comments**
1. Go to Service Tools.	
2. Press **F3 Config Sys**.	
3. Enter the password.	
4. Press **F4 Special Functions**.	The Special Functions NOVRAM bits are displayed.
5. Move the cursor to O – SMPTE External	
6. Press **F1 Toggle**	**Important! When SMPTE is enabled, bit M for DMX Input must be disabled.**
7. Press **F6 Enter & Exit**	The main Config Sys menu is displayed.
8. Press **F6 Store Configuration**	
9. Turn the console off and switch back on.	
10. Press **F1 Cold Start**	

Configuring the number of frames

The default is 12 frames per second.

Keypresses	Results/Comments
1. In Service Tools/Config Sys, Press **F5 Special Numbers**.	The Special Numbers are displayed.
2. Select **SMPTE frames per second**.	
3. Enter a number from 12 – 50.	
4. Press **F6 Enter & Exit**	The main Config Sys menu is displayed.
5. Press **F6 Store config** to confirm the save command.	
6. Press **F1 Cold Start**	

Teaching SMPTE Time

SMPTE codes are assigned to Events that have been programmed in the Event menu (see Chapter 12 Event).

The "teach" function can be used to assign time codes to Events only when the Event has no previous SMPTE assignment. If a time assignment is present it must be erased.

Access the **[SMPTE]** key using **[SHIFT]**.

Keypresses	Results/Comments
1. Press **[SMPTE]**	The options available on the F keys are displayed in the command line area.
2. Press **F2 Teach Me**	Notice that in the upper right corner of the display, the first event number and the current time on the SMPTE generator are displayed.
3. Start the SMPTE generating device	The time code starts running and is displayed at the top of the monitor.
4. Press **F1 Store Event** when the time code for this Event is displayed.	The system automatically advances to the next event number.

Starting at a selected Event

Example: You have already assigned time codes to Events 1 – 4. Teach SMPTE time codes starting from Event 5.

F1 Store Event is operational only when it becomes viable. Example: Event 1 has an SMPTE assignment of 00.00.51.02. Event 2 SMPTE assignment is 00.01.03.15. Event 3 has no assignment. If the SMPTE code starts running from 00.00.00.00 (and Event 3 is selected), only when Event 2 has been triggered will the system allow the **F1 Store Event** option for event 3.

Keypresses	Results/Comments
1. Press **[EVENT]**	The console prompts for an Event number.
2. Enter the event number on the numeric keypad.	
3. Press **SMPTE**	The function keys are displayed in the command line area.
4. Press **F2 Teach Me**	
5. Start the SMPTE generating device	The time code starts running and is displayed at the top of the monitor.
6. Press **F1 Store Event** when the time code for this Event is displayed.	The system automatically advances to the next event number.

Exiting the teach function

Keypresses	Results/Comments
1. Press **SMPTE**	
2. Press **F3 OFF**	The system stops 'listening' to the SMPTE generator.

Manual entering the SMPTE code

You can program the SMPTE time code manually instead of using the “teach” function. Existing assignments can be edited manually.

Corrections may be keyed in even if the original assignment was done in the 'teach me' mode.

Keypresses	Results/Comments
1. Select the Event or range of Events.	
2. Press **[SMPTE]**	The F keys options are displayed in the command line area. See below.
3. Press **F5 Abs**	
4. Use the F keys to access the time codes for hours, minutes, seconds, frames, and enter the correction on the numeric keypad.	
5. Press **[STORE]**	

The F key options are:

F3 +Δ	Edit the frame number. The increase is relative. For example: Event 2 SMPTE assignment is 00.01.03.15, using this option you enter 3 on the keypad and press **STORE**. The corrected frame number will be 18.
F4 -Δ	Edit the frame number. The decrease is relative. Use **STORE**, on the keypad, to record the new value.
F5 absolute	Choosing this option changes the F key options. You can now enter a new absolute value for hours, minutes, seconds, or frames. Use **STORE**, on the keypad, to record the new value.
F6 erase	Erases the entire SMPTE assignment for the selected event.

Erasing a SMPTE time code

Keypresses	Results/Comments
1. Select the Event or range of Events.	
2. Press **[SMPTE]**	The F keys are displayed in the command line area.
3. Press **F6 Erase**	The time code is erased from the selected Events.

Playback with SMPTE

When the SMPTE generator starts at the time code 00:00:00.0 playback begins from Event 1. If the SMPTE generator has advanced beyond 00:00:00.0 the first Events triggered is the Event whose SMPTE assignment is higher than the present running time.

Events are played back in ascending numerical sequence. If an Event has a lower SMPTE assignment than the Event before it, the system will skip over that particular Event.

Keypresses	Results/Comments
1. Press **SMPTE**	Select the SMPTE function. The function keys are displayed in the command line area.
2. Press **F1 Playback**	A small yellow window opens at the top of the display screen showing the event number and the SMPTE time code.
3. Start the SMPTE generator	Each Event is triggered when its SMPTE time code is reached.

Exiting SMPTE playback

Keypresses	Results/Comments
1. Press **SMPTE**	Select the SMPTE function. The function keys are displayed in the command line area.
2. Press **F3 Off**	The SMPTE display at the top of the screen disappears..

CHAPTER 20
DMX INPUT

This chapter includes:

Configuring Photon for DMX input

The DMX input patch

- Patching input channels
- Clearing input patch assignments
- Returning to the default patch
- Examining DMX input assignments
- Assigning macros to DMX input
- Canceling a Macro assignment
- DMX input and Patch 999

A DMX source, such as a second lighting computer or a manual desk can be connected to the Photon. DMX input controls conventional channels, spots, and operates macros. DMX input is displayed in black numerals on a gray field.

DMX input for channels and spots can be integrated into the main console output. Use the Call function to integrate DMX input when programming memories (see Chapter 6 Programming Memories).

Configuring Photon for DMX Input

Photon must be configured for the number DMX input channels in use and must also be enabled for DMX input. Configure the number of input channels in Service Tools/Config Sys/Control Capacity. Enable DMX Input in Service Tools/Config Sys/Special Functions. To access the Special Functions and Special Numbers a password is required. (If you do not have your password, contact your Compulite distributor.)

Keypresses	Results/Comments
1. Go to Service Tools.	
2. Press **F3 Config Sys**.	
3. Enter the password.	
4. Press **F4 Special Functions**	The Special Functions - NOVRAM bit toggles are displayed.
5. Move the cursor to M - DMX Input.	
6. Toggle to Enable.	If bit O-SMPTE is enabled, toggle to disable. SMPTE and DMX input cannot be enabled simultaneously.
7. Press **F5 Enter & Previous**	
8. Place the cursor on **Input DMX**	
9. Enter the number of DMX input channels.	0 (zero) for spots. For conventional channels the number of DMX Input channels is less than or equal to the number of channels in the general System Configuration.
10. Press **F6 Enter & Exit**	Service Tools main menu is now displayed and you are prompted to confirm the new configuration
11. Press **F6 Store Config.**	
12. Turn off Photon and switch back on.	Photon now boots up. After changes in the system configuration it is recommended to power down and power up again.
13. Press **F1 Cold Start**	The system exits Service Tools and comes up in editor mode.

The DMX Input patch

The Input Patch Table is located in the Channel Patch menu. The extent of the patch table depends on the DMX input configuration.

Access the Input Patch Table by pressing **F3 Input Patch**, on the second page of the Channel patch menu.

Each row of the Input Patch Table contains 4 lines.

- CHAN – the console's DMX channels.
- INPUT - the input channel controlling the DMX channel.
- MACRO - the macro number appears, if there are macros assigned to the DMX input channels.
- % - the execution threshold for Macro operation.

Color key for input assignments:

- DMX input channel patch assignments - red on a white field.
- Macro assignments - yellow.

Patching input channels

DMX Input channels can be assigned to control channels in the Photon.

Example 1: DMX input channel 10 is patched to control channels 1 through 10, and 15.

Keypresses	**Results/Comments**
1. Go to the Channel Patch menu.	
2. Press **F6 More** and **F3 Input Patch**	The Input Patch Table is displayed.
3. Press **F1 Assign Input**	Photon prompts for an input channel number
4. Enter 10 on the numeric keypad.	
5. Press **F2 To Channel**	The prompt *To channel #:* appears.
6. Enter 1 on the keypad.	
7. Press **F1 Thru Channel**	Photon prompts for a channel number.
8. Enter 10 on the keypad.	
9. Press **F2 & Channel**	
10. Enter 15 on the keypad	
11. Press **F3 Store**	The input assignment appears in red on a white field below the channel number.

Example 2: Patch channel 55 to DMX Input channel 10, channel 56 to DMX Input channel 11, channel 57 to DMX Input channel 12, channel 58 to DMX Input channel 13.

Keypresses	Results/Comments
1. Go to the Channel Patch menu.	
2. Press **F6 More** and **F3 Input Patch**	The Input Patch Table is displayed.
3. Press **F1 Assign Input**	Photon prompts for an input channel number
4. Enter 10 on the numeric keypad.	
5. Press **F1 Thru Input**	Photon prompts for an input channel number
6. Enter 13 on the keypad.	
7. Press **F2 To Channel**	Photon prompts for a channel number.
8. Enter 55 on the keypad.	
9. Press **F1 Store**	The input assignments appear in red on a white field below the channel number.

Clearing Input patch assignments

You have the option of clearing the Inputs or the system Channels. The example below shows how to clear Input assignments.

Keypresses	Results/Comments
1. Press **F2 Clear Input**	
2. Press **F1 Inputs**	
3. Enter a number in answer to the prompt.	More than 1 input channel may be selected at this time.
4. Press **F1 Store**	The assignment is cleared.

Returning to the default patch

You can return the entire Patch Table or selected patches to the 1-to-1 default DMX Input Patch

Example: Reset the entire patch.

Keypresses	Results/Comments
1. Press **F3 Default (1 to 1)**	
2. Press **F1 All Patches**	Photon asks *Are you Sure??*.
3. Press **F1 Yes**	All assignments are returned to default.

Example: Return channels .55 → 57 to the default

Keypresses	Results/Comments
1. Press **F3 Default (1 to 1)**	
2. Press **F2 Channels**	Photon prompts for a channel number.
3. Enter 55 on the numeric keypad.	
4. Press **F1 Thru Channel** and enter 57 on the keypad or Press **[→]** and enter 57 on the keypad.	
5. Press **F3 Store**	The selected channels return to default.

Examining DMX input assignments

Isolate selected input channels for examination.

Keypresses	Results/Comments
1. Press **F5 Exam**	Photon prompts: *Exam assignment of input #:*
2. Enter the input number on the numeric keypad.	
3. Press **F1 Enter**	The patch assignments for the selected input channel are displayed.
4. Press or **F1 Previous** or **F2 Next** or **[-] [+]** to continuing.	

Assigning Macros to DMX input

One Macro can be assigned to an input channel.

When a Macro is assigned, raising the intensity level of the input channel operates the macro. The default execution threshold is 50%. The execution threshold can be changed in the Assign Input option in the Macro menu.

Keypresses	Results/Comments
1. Go to the Macro menu.	
2. Press **F5 Assign Input**	The input patch table is displayed.
3. Enter a macro number.	Photon prompts for an Input channel number.
4. Enter an input channel.	
5. Optional - Press **F2 Start From** and enter a level.	The default level assignment is 50%.
6. Press **F1 Store**	

Canceling a Macro assignment

Keypresses	Results/Comments
1. Go to the Macro menu.	
2. Press **F5 Assign Input**	The input patch table is displayed.
3. Enter a macro number.	
4. Press **F3 Delete**	The Input channel is returned to its default assignment.

DMX Input and patch 999

You can instruct the system to use Patch 999 (see Appendix B for Patch 999) on DMX input or ignore Patch 999 for DMX Input. . The system default is DMX input channels working according to Patch 999.

Ignoring Patch 999

Keypresses	Results/Comments
1. Go to the Channel Patch menu.	
2. Press **F6 More..**	
3. Press **F3 Input Patch**	The Input Patch is displayed.
4. Press **F3 Default 1 to 1**	
5. Press **F1 Yes**	*Ignore 999* is displayed.

Using DMX Input under Patch 999

Keypresses	Results/Comments
1. Go to the Channel Patch menu.	
1. Press **F6 More..**	
2. Press **F3 Input Patch**	The Input Patch is displayed.
3. Press **F3 Default by 999**	
4. Press **F1 Yes**	*Under 999* is displayed.

APPENDIX A
SERVICE TOOLS

This chapter includes:

Accessing Service Tools

Main Menu

Diagnostics

Upgrading Software

- Using the Software Upgrade option
- Upgrading software under Disk Operations

Disk operations

- Formatting diskettes
- Recording the system configuration
- Loading the system configuration
- Upgrade software

Service Tools is where you configure Photon, format disks, carry out hardware tests, and upgrade Photon ’s software.

The System Configuration functions appear in Chapter 16 - System Configuration.

Accessing Service Tools

1. Turn off the power.
2. Press and hold down **[CE] [CLEAR]**
3. Turn the power back on.
4. After a few seconds, release the keys. After running some self-tests, the Service Tools main menu is displayed. The information on the upper part of the screen shows the different sections of the program and EPROM. The lower area of the screen shows the current F key functions.

Main Menu

In the main menu, the Function keys offer the following options:

F1 Cold Start	Clears the system of all show memory data. The system should be 'cold started' occasionally.
F2 Warm Start	Retains all the current memories.
F3 Config. System	Access the different system definition options. See Chapter 16 - System Configuration.
F4 Diagnostic	Access various diagnostic functions that aid in isolating hardware and keyboard malfunctions.
F5 Software Upgrade	Used to replace software versions.
F6 Disk Operations	Tools for diskette formatting and software upgrades. Record and Load system configuration. Boot floppy, boots the system to DOS.
0 Print Configuration	Print the entire system configuration, including current software version, current hardware configuration, system configuration (number of channels, scrollers, dimmers), NOVRAM set up, etc. If this print is included in the file you keep on the show, there will be no guessing as to the system configuration was used.
MENU More…	Access Patch 999 – see Appendix C Patch 999.

Diagnostics

The diagnostic function (**F4**) provides 3 tests for hardware, each for a separate part of the system.

1. **F3 CRT's & PANEL** - This tests the panel by flashing all the LEDs on keys, checks the LED displays, and shows a color chart on monitor.
   Press **[RESET]** to return to the main Diagnostic menu.
2. **F4 KEYBOARD TEST -** Displays a map of all the wheels, controllers, the trackball, the A/B crossfaders, and the General Master, which are tested by moving them. The lower right corner of the display has a small window for checking the keystrokes of the main console keys, Submaster Wing, Macro Extension Keyboard, Remote Control, and the alphanumeric keyboard. Numbers run on the LED displays.
   Press **[RESET]** to return to the main Diagnostic menu.
3. **F5 MEMORY TEST -** Provides two different memory tests. Pattern (**F1**), which will check the memory while retaining all the current show data and Warm (**F2**), which loses all the current show data.

Upgrading Software

Please read this thoroughly before attempting to upgrade the software.

There are two software Upgrade functions. **F5 Software Upgrade** is used when upgrading the Image files (imf) and Text files (tim). Service Tool software upgrades are carried out in the Disk Operations (**F6**) option.

Using the Software Upgrade option

This is option **F5 Software Upgrade**.

DO NOT upgrade the Service Tools software here. **Upgrades for Service Tools are executed under F6 Disk Operations only.**

Prepare an empty formatted diskette.

You can abort the upgrade at any point by selecting **[MENU]** or **[RESET]**.

Keypresses	Results/Comments
1. Press **F5 Software Upgrade**	The system loads the present software version from the flash EPROM. The message: *Old software has been loaded from flash. Please insert EMPTY formatted disk* is displayed.
2. Insert an empty disk.	
3. Press **F1 Continue**	The old software is written to the diskette. When the old software is copied to disk, the system prompts: *Please insert the NEW software disk*.
4. Insert the diskette with the new software	
5. Press **F1 Continue**	The new software is loaded. When the load is complete, the system will prompt: *Do you really want to program the flash?*
6. Press **F1 Continue**	Now the old software is erased from the flash. The new s/w is flashed and the system verifies that the procedure was successful. When the writing of the new software to the flash is complete, the system generates the message: *Press any key*.
7. Turn off the power and turn it back on.	Photon boots to service Tools main menu.
8. Press **F1 Cold Start**	**It is imperative to cold start the system after flashing new software.**

Upgrading software under Disk Operations

Upgrade Service Tools here.

You can also upgrade the image and time files here, however it is not recommended. Use the Software Upgrade option available on the first page of Service Tools for upgrading image and text files.

Keypresses	Results/Comments
1. Press **F6 Disk Operations**	Select the Disk Operations functions.
2. Insert the disk containing the new Service Tools software	
3. Press **F2 Load Image**	The system reads the diskette and displays the name of the image file on the disk. Enter a number on the numeric keypad to select/deselect files.
4. Press **F1 Load Files**	The files from the new software diskette are loaded. The file details are displayed.
5. Press **F6 Program Flash**	The old software is erased from the flash and the new software is written to the flash. When the writing of the new software to the flash is complete, the system generates the message: *Press Any Key*.
6. Turn off the power and turn it back on.	Photon boots to service Tools main menu.
7. Press **F1 Cold Start**	**It is imperative to cold start after flashing new software.**

Disk Operations

The functions performed under Disk Operations are:

- Format diskettes
- Upgrade Service Tools software
- Record the System Configuration
- Load the System Configuration

Formatting disks

Keypresses	Results/Comments
1. Press **F6 Disk Operations**	
2. Press **F1 Format Disk**	Reads and displays the files recorded on the disk.
3. Press **F1 Format 1.44 Mb.** or **F2 Quick Format**	Use this option is formatting a new 1.44 m. diskette. Use this option to format a diskette that has already been formatted. Reformatting a diskette will erase all the information previously recorded.
4. Press **F6** to confirm format command or press any key to cancel.	

Recording the system configuration

This function records the system configuration which includes the number of channels, scrollers, dimmers, amount and type of moving devices, as well as the special function and special number data.

It is important to record the system configuration to eliminate guesswork when reconstructing a show. Each configuration recording is given a file name and text. Load the configuration for your show if the current system configuration differs from the system configuration on which the show data was recorded.

Configuration files are accessible only in Service Tools and do not appear when examining the diskette in the Load menu.

Keypresses	Results/Comments
1. Press **F6 Disk Operations**	
2. Press **F4 Record Config**	The system prompts you to enter a file name. Enter a file name (number) on the numeric keypad
3. Press **F4 Record S.T. File**	A text window opens. You may enter a textual description for the configuration file on the alphanumeric keyboard.
4. Press **F1 Enter**	When completed the message *Recording Done* is displayed.

Loading the system configuration

It is recommended to load the configuration before loading a show file to avoid loading the show file under Warning Difference (see Chapter 9 – Data Storing and Retrieval).

Keypresses	**Results/Comments**
1. Press **F6 Disk Operations**	
2. Insert the diskette with the Configuration files.	
3. Press **F5 Load Config**	The Config files are displayed.
4. Enter the file number on the numeric keypad or use **F2** and **F3** to select the file.	
5. Press **F5 Load S.T. Config**	Load the selected file. The display returns to the system configuration. The prompt, *Press F6 To Store Changes!!!!* Is displayed.
6. Press **F6 Store Configuration**	Store the configuration that you have just loaded. This is not always necessary and the system will prompt you to store configuration if it is needed.

APPENDIX B
PATCH 999

This appendix includes:

Patch 999

- Configuring for Patch 999
- Programming and burning Patch 999
- Editing patch 999
- Color key for Patch 999
- Examining Patch 999

Patch 999

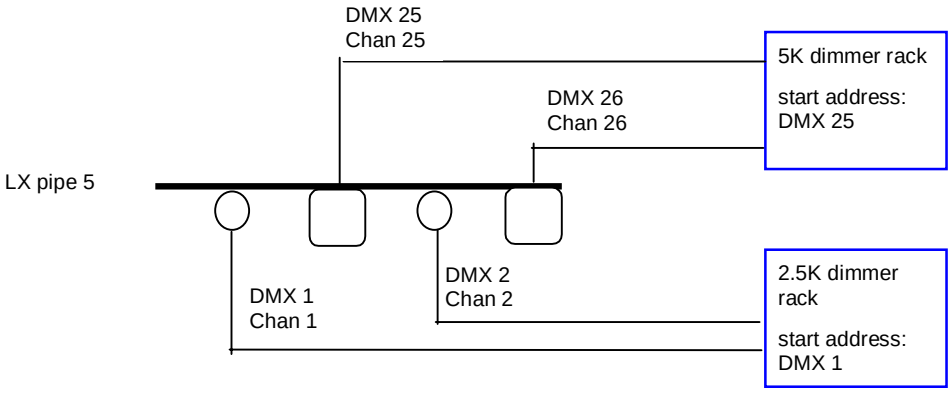
Patch 999 allows an additional layer of patching at the channel level. In Patch 999, logical channels range from 1 to 999. The Patch 999 maps the logical channels to DMX addresses. The logical number of channels mapped cannot exceed the number of actual channels in the system. .

The regular soft patching in the Channel Patch menu can also be applied after programming Patch 999. It will patch **logical channels** to dimmers.

Patch 999 is accessed in Service Tools. Patch 999 is saved on the flash RAM in conjunction with the system text (*.tim) file. Since Patch 999 is saved in the flash RAM it is not lost after Cold Starting the system. When you burn a new *.tim file a backup file of Patch 999 is automatically generated and Patch 999 reverts to default 1-to-1. The backup file is called Rescue. 999. The system displays a message while recording the Rescue file.

Example 1: The system is configured for 200 actual channels. The 999 patch can be used to define these 200 channels as logical channels. They can be defined in many combinations, for instance, 100 - 199 and 400 -499.

Example 2: Assume that your rig is set up like this:



On LX pipe 5 there are 2 PAR cans circuited to 2.5K dimmers. The DMX start address for the rack is 1. The default channel patch is 1 to 1, so the instrument connected at DMX 1 is controlled by control channel 1 and the instrument connected at DMX 2 is controlled by channel 2. On the same pipe there are 2 x 5K lamps circuited to a dimmer rack whose start address is 25. Again, since the default channel patch is 1 to 1 the lamps circuited to DMX 25 and 26 are controlled by channels 25 and 26 respectively.

This is a very simple example, but it is obvious how a confusing array of control channels can be found on one LX hanging position. Patch 999 can be used to create a default patch that appears in the Channel Patch menu as 1 to 1.

Configuring for Patch 999

Keypresses	Results/Comments
1. Go to Service Tools	
2. Press **F3 Config System**	
3. Enter the passcode	
4. Press **F4 Special Functions**	
5. Toggle bit J to Yes.	If toggled to No, the system ignores Patch 999.

Programming and burning Patch 999

Keypresses	Results/Comments
1. Enter Service Tools	
2. Press **[MENU] More functions**	The second page of options is displayed.
3. Press **F3 999 OPER**	Access patch 999. The patch display consists of 8 columns. Each column is further divided into 2 labeled *chan* and *DMX*. The chan/DMX numbers go from 1 to 999 in ascending order. Numbers that are higher than the number of dimmers in the system configuration appear in dark gray and DMX 0 is assigned as a default.
4. Insert formatted diskette to disk drive	Editing this patch table is done on a PC, therefore the file must first be copied onto a diskette.
5. Press **F2 RECORD 999**	Patch 999 is copied to the diskette. The file name is recorded as the image file name and the suffix 999. Example: the image file is PHA05R01. The name of the recorded Patch 999 file will be PHA05R01.999.
6. Edit the file using the text editor on your PC.	(see instructions table below)
7. Insert the disk into the disk drive on the lighting console.	Now the edited Patch 999 can be written to the Flash RAM.
8. Go to Disk Operation	
9. Press **F2 LOAD IMAGE**	If more than one file exists on the disk, select the one you want to load.
10. Press **F1 LOAD FILES**	The system automatically records the old Patch 999, as a rescue file.
11. Press **F6 PROGRAM FLASH**	The new Patch 999 is written to the Flash RAM. When completed, return to the main of Service Tools and press F1 to **Cold Start** the system.

Editing the file on a PC

Keypresses	Results/Comments
1. Boot up to DOS	
2. Insert the disk containing the Patch 999 copied from the console.	
3. Change directory to your floppy drive.	
4. Type `Edit` and the file name.	
5. Edit the file.	**DO NOT** change the numbers in the channel column. Only the DMX # column should be edited. **A DMX NUMBER CANNOT APPEAR TWICE. DELETE IT WHERE NECESSARY.**
6. Save the edited file to the floppy disk.	When saving the new data, the file name can be changed
7. Copy the edited file to the console (see steps 7 – 10 above).	

➢Note

Comments can be added by starting a new line. This line must begin with the character #, which signals that this is a comment line and not to be considered part of the patch.

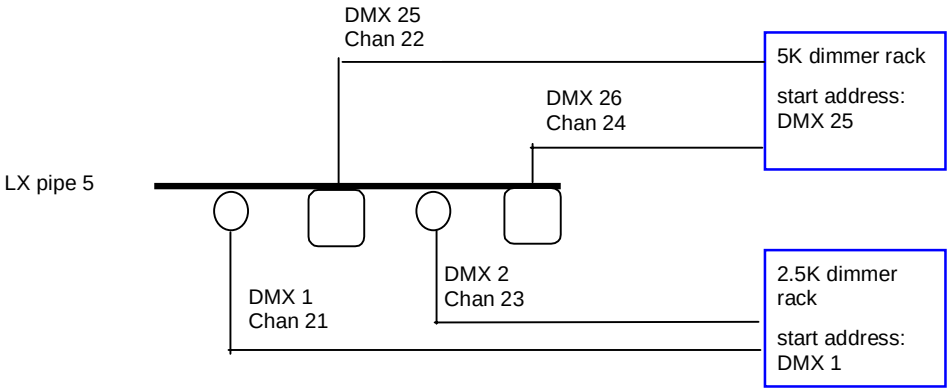
Now that we've seen how to download, edit, and flash in Patch 999, let's look at how it applies to the example above. As it stands the control channels for the instruments (when left at default 1 to 1) hung on lx pipe 5 are DMX 1, 25, 2, 26. If you want them to run consecutively starting from channel 21, edit Patch 999 like this:

chan	DMX	chan	DMX	chan	DMX
1	0	2	0	3	3
4	4	5	5	6	6
7	7	8	8	9	9
10	10	11	11	12	12
13	13	14	14	15	15
16	16	17	17	18	18
19	19	20	20	**21**	**1**
22	**25**	**23**	**2**	**24**	**26**
25	0	26	0	27	27

Note that the default DMX assignment for channels 1, 2, 25, and 26 have been cleared.

A DMX ASSIGNMENT CANNOT BE ASSIGNED TO MORE THAN ONE CHANNEL. DO NOT change the numbers in the channel column.

The result of the patching described above looks like this:



Color key for Patch 999

Item	Color
Cleared assignments	Dark Gray
Channels with DMX assignments different from their default.	Blue
DMX assignments to channels different from their default.	White

Examining Patch 999

Patch 999 information appears in the dimmer exam window when examining selected dimmers.

Keypresses	Results/Comments
1. Go to the Channel Patch menu.	You will notice that the Channel Patch now reflects Patch 999.
2. Press **F6 More F1 Exam**	
3. Press **F2 Dimmer**	The system prompts for a dimmer number.
4. Enter a dimmer number in response to the prompt.	A window showing all the patch information is displayed.

You can also see the result in the Channel Patch Table. Using the example above:

The default Channel Patch will be 1-to-1. However, since we cleared DMX 1, 2, 25, and 26 these dimmers and channels do not appear in the Channel Patch Table.

APPENDIX C
PANEL LAYOUT

The appendix is arranged alphabetically.

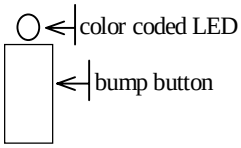
Key	What it does
→	"Through" key for selecting ranges of channels or memories. This key is also used to free or call a range of controllers.
—	Decrement selected channel or memory by one.
• (decimal point)	Use for sub-decimal memories, intensity assignment, or fade time assignments that are less a whole number. If the system is defined as 'USA' it is unnecessary to use this key for intensity assignments. When editor is in idle, pressing this key displays the System Status, including any remote devices and the battery.
+	Increments selected channel, snap, or memory by one.
+1STORE	Store the group in the editor as a memory, incrementing the previously stored memory number by a predetermined increment. The increment is adjustable in the System Parameters menu.
=	Put the system in memory recording mode. Use when storing or renaming memories.
0 thru 9	Used for all numeric selections.
A	Access crossfader A for assignment or call.
ASSIGN	Assign memories, groups of channels, chasers to the controllers.
AUTO	When activated (LED is on) the system executes Event assignments in conjunction with memories sequencing the A/B playback. When disabled (LED is off) any Event assignments are ignored. It is automatically activated when an assignment is made to A or B.
B	Access crossfader B for assignment or call.
BACK	Returns to the previous memory in a fade time of 1 second. There are back keys for A/B, C/D and for each controller/chaser.

Key	What it does
BLIND	Blind mode allows memory creation or memory modification without disturbing the output on stage. Press a second time to exit Blind mode.
BO	The black out key of the general master blacks out the entire output of the control board. The black out key for the General Master may be disabled in the System Parameters -menu.
C	Access crossfader C for assignment or call.
CALL	Use to enter selected output from playback sites or controllers to the editor. Call output to editor, calculating the G.M. level if the G.M. is not at 100%.
CE	Clear entry. This clears the last numeric entry in the command line.
CHANNEL	Set the keypad for channel selection. This key also acts as an "and" key when used between channel selections. Press twice to set the keypad to default to channel selection for first number selection. *Channel* appears in the command line on a gray field. The system recognizes the first number selection as a channel without needing to press this key.
CLEAR	A regressive clear function, clearing the command line of the last entry displayed and finally clearing the editor and putting it in idle. .
COPY	Copy scroller frame assignments. Copy channel intensity assignments.
EFFECT	Select a pre-recorded effect for assignment to the chaser. This key is located on the Touch Screen.
ENTER	Convert a selected memory to a group of channels in the editor, preserving the channels' associated levels. End the copy parameter key sequence.
ERASE	Erase (delete) memories, loops, links, delta, libraries, groups, snaps, and time assignments.
EVENT	Select an event number for operation, examination, or SMPTE time code editing. This key is located on the Touch Screen.
EXAM	Used in conjunction with appropriate commands, examines channel assignments, libraries, contents of memories, the memory sheet, controller assignments, and more.

Key	What it does
F1 thru F6	Soft keys. In menu mode these six keys change their function in accordance with the current menu. Direct access to Macros 1 - 5.
F6	Press to view the Macro list.
FLASH	Flash the dimmer of the selected channels. This key is located on the Touch Screen.
FRAME	Access the scroller frame to assign a frame value using the numeric keypad.
FREE	Release the assignments from playback faders, controllers, or chasers.
FULL	Assign an intensity of 100% (FL) to selected channels.
General Master	The general master controls the entire output of the desk. The level of its potentiometer may be altered via the Diagnostics function. The top level of the general master may be set at either 100% or 200%. The general master may also be used to control the output of crossfaders and controllers to create new memories.
GO	Initiate a crossfade on the A/B faders. Interrupt a crossfade in progress and immediately initiate a fade to the next memory in the sequence.
GO TO	Interrupt a crossfade in progress and immediately initiate a fade to the next memory in the sequence. Exit a loop. This key also allows a fade to a selected memory either in editor time or recorded memory time.
HARD	Assign chasers in 'hard' run mode.
HELP	On line help. Select any key; the help window displays information pertaining to the selected function. Press **[HELP]** again to exit.
HOLD	Halt a crossfade in progress.
LATCH	Change the bump buttons to on/off keys.
LINK	Link nonsequential memories. This key is located on the Touch Screen.
LOOP	Connect a range of memories in a loop. The types of loops are: automatic (infinite) loops, manual loops, follow on cues, finite loops, and auto follow loops.

Key	What it does
MASK	Select the channels from a memory as a group of channels in the editor.
MEMORY	Set the numeric keypad to memory mode. Press twice in order to set the keypad to default to memory selection for first number selection. *Memory* appears in the command line on a gray field when the number selection default is memory.
MENU	Select menu mode, the main menu list is displayed. Press a second time to exit menu mode and return editor mode.
ON	Assign an intensity of 50% (default value) to selected channels. The value of this key may be changed in the System Parameters menu.
PAGE UP	Page the exam display.
PAGE DN	Page the exam display.
RATE A/B	The rate wheel takes control of the rate of the crossfade running on the A/B faders.
RATE CHASE	The rate wheel takes control over the rate of a chaser running on the controllers.
RELEASE	Release channels and scrollers from memories, the editor, and controller assignments.
RESET	Clear the editor by pressing this key. One press causes the active channels to fade out, two quick presses bumps them out. Clear the editor, exit menu mode, or exit a specific menu function, returning to the menu list.
S/L OFF	Disable the Sound-to-Light function
S/L ON	Enable the Sound-to-Light function.
SEQ	When activated, this key automatically assigns the next memory, in the numerical sequence, to the fader that is at its zero limit. It is automatically activated when an assignment is made to A or B.
SHIFT	Use to access the secondary function of double function keys. The secondary function appears in the upper half of the key. For convenience a Shift key is located in the editor section and next to the controllers.
SMPTE	Access the functions for SMPTE programming and playback.

Key	What it does
SNAP	Take a 'snapshot' of all the fader and controller assignments on the console. These assignments are recorded and available for instantaneous recall. Upon retrieval all the recorded assignments snap into their proper places. Change the Numeric Soft key mode to Snap mode. Additive snaps operate in this mode.
SOFT	Assign chasers in 'soft' run mode.
SOLO	Change bump button operation. All controller output, except the bump button pressed, is blacked out.
- SOLO	Invert Solo. The output of the selected controller is blacked out.
STAGE	Access the display format options. This key also returns you to stage display from most exam displays.
STORE	Record the memory, terminating the record function. Channels remain present, but not selected in the editor.
SUBM	Assign selected controllers as inhibit submasters.
TEACH MACRO	This function allows the operator to construct a macro without entering the Macro menu. In addition to "live" construction of editor function and playback function macros, the "teach me macro" function provides a way to construct macros for menu functions (not including Macro menu).
TEST	Test channels. This key is located on the Touch Screen.
TEXT	Accesses the alphanumeric keyboard while displaying a blue field for any notes or other textual uses. Used in conjunction with the memory key attaching text to an individual memory. Text may also be attached to show data files, Snaps, Effects, Events, and Macros. This key is located on the Touch Screen.
TIME	Assign up fade time to the selected memory. Press twice to access time out.
WAIT	Assign of wait in times and wait out times to the selected memory. Press twice to access wait-out
ZERO	Forces selected channel to zero.

Key	What it does
DIMMER	Allows continuous adjustment of intensity levels for channels. When **[FRAME]** is selected the wheel changes scroller frames. When a Rate key is selected the wheel modifies the fade or chaser rate. The wheel functions in a non-collapsing manner.
	Each fader and controller/chaser has a bump button. The bump button flashes the contents of the associated fader or controller from its current output level to full.

APPENDIX D
PHOTON AS BACKUP FOR 3B SYSTEMS

This chapter includes:

Overview

Output

Overview

Photon with EPROM PAL Q can be configured for more than 240 channels. When Photon is configured for more than 240 channels it becomes a Backup Board for Ovation 3B and Applause 3B.

Photon as Backup supports:

- DMX input
- MIDI In/Out
- 2 Chasers only

Photon as Backup does support:

- Rate modification for A/B
- Editing Effect or Auto Chase
- Solo
- Invert Solo
- Teach Macro
- Storing Snaps

Output

Photon LX has 2 output connectors. When configured as an on-line Backup for Ovation 3B and Applause 3B, the DMX input from the main system is mirrored on the 2 output connectors; Out 1 transmits CMX and Out 2 transmits DMX.

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